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RANGE SITE

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Technical Descriptions and Range Condition Guides

NEW MEXICO

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C & R-PREP.



GRASS is what the rancher sells.....

U. S. Department of Agriculture, Soil Conservation Service ... Albuquerque, New Mexico ... 1962

656 pp.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico


August 1, 19⁶2

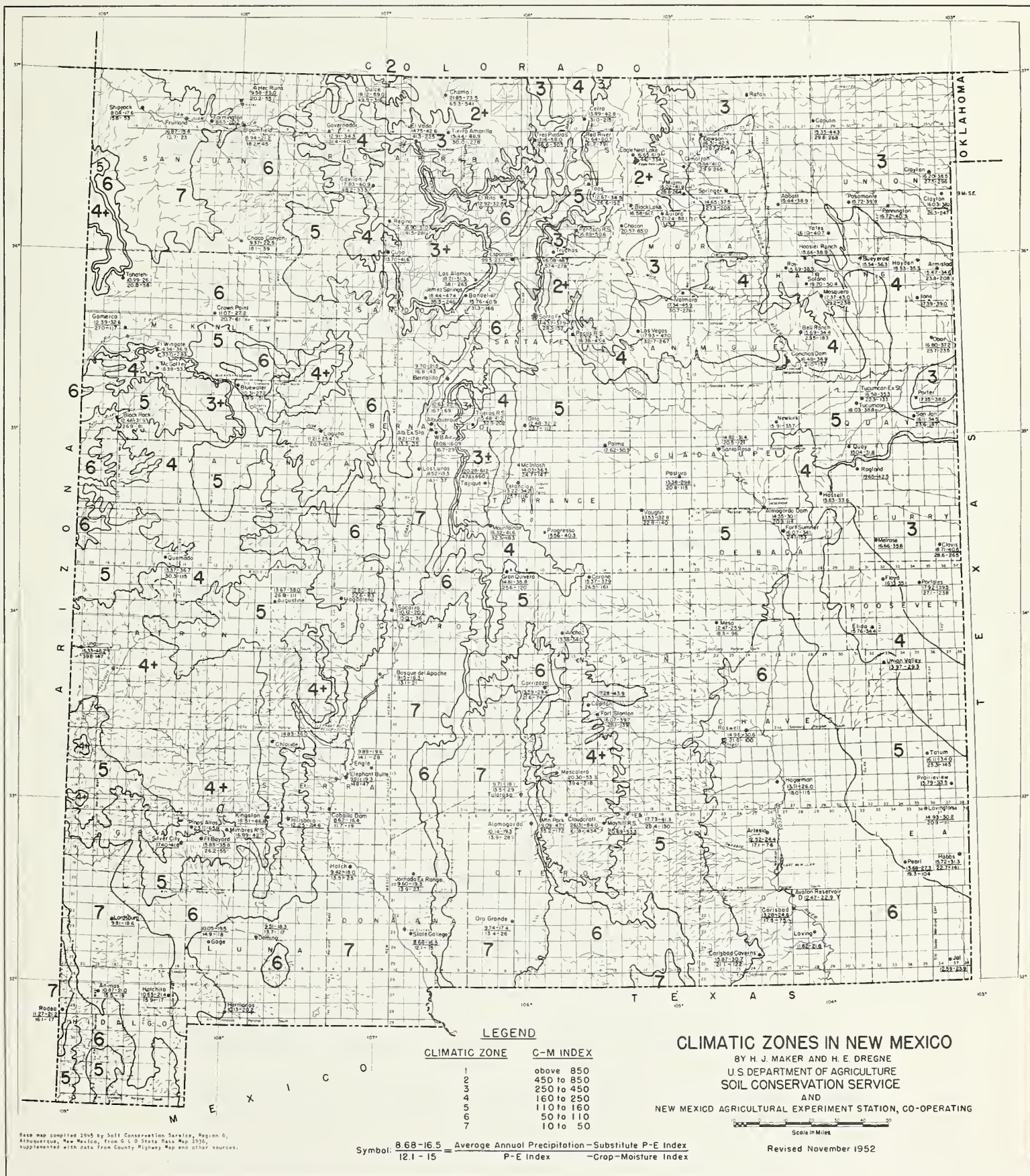
MEMORANDUM

This catalog is assembled for the purpose of bringing together the technical range site descriptions and accompanying range condition guides for all range sites currently recognized and used in providing assistance in ranch planning in New Mexico. Its use is designed primarily for conservationists and others having an interest in the work of the Soil Conservation Service as related to its assistance to Soil and Water Conservation Districts in the range conservation program. As work progresses, other sites will no doubt be encountered, and as this occurs, these new sites will be described and added to this catalog. Also, it is possible that modifications will be found necessary to further improve the accuracy of these site descriptions.

These descriptions and guides have been prepared by range conservationists and soil scientists working in New Mexico over the past several years, and the data contained in them are the result of field observations, tempered with rancher knowledge, made under varying extremes of weather conditions. Although based primarily on emperical knowledge in working with conservation ranchers, these site descriptions and condition guides incorporate useful scientific range research. It might be said that knowledge gained from practical hard ranching experience has been combined with scientific range research to produce a product basic to providing assistance in ranch planning.

For some of the sites, complete soils information showing soil series, types, and phases is lacking. As Standard Soil Surveys encompass these sites, this material will be added to the appropriate section of the site description.


C. A. Tidwell
State Conservationist



LEGEND

RELATIVE RATING OF DECREASER SPECIES FOR RANGE SITES

AS SHOWN IN THE RANGE CONDITION GUIDES

- (1) A decreaser species having the potential to dominate the site and produce more forage than any other species of the site.
- (2) An important associated decreaser species that does not dominate the site but is capable of producing at least 25 percent of the forage.
- (3) An important but secondary decreaser species capable of producing from 10 to 25 percent of the forage.
- (4) A minor decreaser species that generally occurs on the site but produces less than 10 percent of the forage.
- (5) An insignificant decreaser species which, if present, occurs only as a trace species.

EXPLANATION OF INCREASE-PERCENTAGE

T---Trace amount - does not exceed more than 2-1/2 percent composition by weight.

5%--Percentage composition by weight allowed as climax vegetation. This percentage figure is estimated and indicated in 5 percent multiples (ie: 5, 10, 15, 20, etc.)

NEW MEXICO TECHNICAL RANGE SITE LIST

| <u>Range Site Name and Number</u> | <u>Land Resource Area and Sub Area</u> |
|-----------------------------------|--------------------------------------------|
| 1. Deep Sand | HP-2, HP-3, CP-2 |
| 2. Deep Sand | CP-3 |
| 3. Deep Sand | WP-1, WP-2, ND |
| 4. Deep Sand | SD-1 |
| 5. Deep Sand | SD-2, SD-4 |
| 6. Deep Sand | SD-3 |
| 7. Sandy Plains | HP-1, CP-1 |
| 8. Sandy Plains | HP-2, HP-3, CP-2 |
| 9. Sandy Plains | SD-3 |
| 10. Sandy Upland | HP-1, CP-1 |
| 11. Sandy Upland | HP-2, CP-2 |
| 12. Sandy Upland | HP-3 |
| 13. Sandy Upland | CP-3 |
| 14. Sandy Upland | ND, WP-1, WP-2 |
| 15. Sandy Upland (Missing) | WP-3 |
| 16. Sandy Upland | SD-1 |
| 17. Sandy Upland | SD-2 |
| 18. Sandy Upland | SD-3 |
| 19. Shallow Sand | CP-2, CP-3 |
| 20. Shallow Sand | WP-1, WP-2, ND |
| 21. Shallow Sand | SD-1 |
| 22. Shallow Sand | SD-2, SD-3 |
| 23. Sand Hummock | ND |
| 24. Sand Hummock | SD-2, SD-3 |
| 25. Loamy Upland | HP-1, CP-1 |
| 26. Loamy Upland | HP-2, CP-2 |
| 27. Loamy Upland | HP-3, HP-4 |
| 28. Loamy Upland | CP-3 |
| 29. Loamy Upland | CP-4 |
| 30. Loamy Upland | WP-1 |
| 31. Loamy Upland | WP-2 |
| 32. Loamy Upland | WP-3 |

Range Site Name and Number

Land Resource Area
and Sub Area

33. Loamy Upland
34. Loamy Upland
35. Loamy Upland
36. Loamy Upland
37. Loamy Upland (Missing)

ND
SD-1
SD-2
SD-3
SD-4

38. Clayey Upland
39. Clayey Upland (Missing)
40. Clayey Upland (Missing)
41. Clayey Upland
42. Clayey Upland
43. Clayey Upland
44. Clayey Upland
45. Clayey Upland
46. Clayey Upland
47. Clayey Upland
48. Clayey Upland
49. Clayey Upland

HP-1, CP-1
HP-2, CP-2
HP-3
CP-3
ND
WP-1
WP-2
WP-3
SD-1
SD-2
SD-3
SD-4

50. Limey Upland
50a. Limey Upland
51. Limey Upland
51a. Limey Upland

HP-3
SD-3
WP-2
CP-2, CP-3

52. Limey Slopes

SD-2

53. Shallow Shale
54. Shallow Shale
55. Shallow Shale

CP-1
ND, WP-2
WP-1

56. Shallow Upland
57. Shallow Upland
58. Shallow Upland
59. Shallow Upland
60. Shallow Upland
61. Shallow Upland
62. Shallow Upland
63. Shallow Upland
64. Shallow Upland
65. Shallow Upland

HP-1, CP-1
HP-2, CP-2, CP-3
HP-3
CP-4
ND
WP-1, WP-2
WP-3
SD-1
SD-2
SD-3

Range Site Name and Number

Land Resource Area
and Sub Area

| | |
|------------------------------|------------------|
| 66. Cinder Upland | CP-1 |
| 67. Cinder Upland | WP-2 |
| 68. Cinder Upland | RM-1 |
| 69. Salt Flats | HP-2, HP-3 |
| 70. Salt Flats | CP-3 |
| 71. Salt Flats | ND, SD-1 |
| 72. Salt Flats | WP-1, WP-2 |
| 73. Salt Flats | SD-2 |
| 74. Salt Flats | SD-3 |
| 75. Red Shale | HP-2, HP-3, CP-2 |
| 76. Gyp Uplands | CP-2, CP-3 |
| 77. Gyp Uplands | WP-2, SD-1 |
| 78. Gyp Uplands | SD-2, SD-3 |
| 79. Gravelly Upland | CP-1 |
| 80. Gravelly Upland | CP-2 |
| 81. Gravelly Upland | ND |
| 82. Gravelly Upland | WP-1, WP-2, SD-1 |
| 83. Gravelly Upland | WP-3 |
| 84. Gravelly Upland | SD-2, SD-3 |
| 84a. Gravelly Upland | SD-4 |
| 85. Malpais Upland | CP-1 |
| 86. Malpais Upland | WP-1, WP-2 |
| 87. Malpais Upland | WP-3, |
| 88. Malpais Upland | SD-1 |
| 89. Malpais Upland | SD-2 |
| 90. Malpais Upland | RM-1 |
| 91. Malpais Breaks (Missing) | CP-1 |
| 92. Malpais Breaks | WP-1, WP-2 |
| 93. Malpais Breaks | WP-3 |
| 94. Malpais Breaks | SD-1 |
| 95. Malpais Breaks | SD-2 |
| 95a. Malpais Breaks | SD-3, HP-3 |
| 96. Malpais Breaks | RM-1 |

| Range Site Name and Number | Land Resource Area and Sub Area |
|----------------------------|------------------------------------|
| 97. Sandstone Breaks | HP-1, CP-1, CP-2 |
| 98. Sandstone Breaks | WP-1, WP-2 |
| 98a. Sandstone Breaks | SD-2 |
| 99. Stony Hills | CP-1, CP-2, CP-3 |
| 100. Stony Hills | ND, WP-1, WP-2 |
| 101. Stony Hills | WP-3, SD-4 |
| 102. Stony Hills | SD-2, SD-3 |
| 103. Stony Mountains | SD-1 |
| 104. Stony Mountains | SD-2, SD-3 |
| 105. Stony Mountains | SD-4 |
| 106. Limestone Hills | CP-3, CP-4 |
| 107. Limestone Hills | SD-2, SD-3 |
| 108. Shale Breaks | ND |
| 109. Shale Breaks | WP-1, WP-2 |
| 110. Shale Hills | CP-1 |
| 111. Shale Hills | ND |
| 112. Shale Hills | WP-1, WP-2, CP-3 |
| 113. Gyp Hills | CP-3 |
| 114. Gyp Hills | WP-1, WP-2 |
| 115. Gyp Hills | SD-2, SD-3 |
| 116. Cinder Hills | CP-1 |
| 117. Cinder Hills | WP-2 |
| 118. Cinder Hills | RM-1 |
| 119. Salty Hills | CP-3 |
| 120. River Breaks | WP-2 |
| 121. River Breaks | WP-3 |
| 122. River Breaks | SD-1, SD-2 |

Range Site Name and Number

Land Resource Area
and Sub Area

| | |
|----------------------------------|---------------------------------|
| 123. Sandy Bottomland | HP-1, HP-2, CP-1, CP-2 |
| 123a. Sandy Bottomland | SD-3 |
| 124. Loamy Bottomland | (HP-1, HP-2, HP-3, |
| 125. Loamy Bottomland | (CP-1, CP-2, CP-3 |
| 126. Loamy Bottomland | CP-4, SD-2, SD-3, SD-4, WP-3 |
| | ND, WP-1, WP-2, SD-1 |
| 127. Clayey Bottomland | HP-1, HP-2, HP-3, CP-1, CP-2 |
| 128. Clayey Bottomland | CP-3 |
| 129. Clayey Bottomland | (CP-4, SD-1, SD-2, SD-3, SD-4, |
| 130. Clayey Bottomland | (WP-3 |
| | ND, WP-1, WP-2 |
| 131. Salty Bottomland | HP-1, CP-1, CP-2, CP-3 |
| 132. Salty Bottomland | ND, WP-1, WP-2 |
| 133. Salty Bottomland | SD-1, SD-2, SD-3 |
| 134. Salt Meadow | CP-1, CP-3, ND, WP-1, WP-2 |
| 135. Salt Meadow | SD-2, SD-3 |
| 136. Wet Meadow | CP-1, CP-2, WP-1, WP-2 |
| 136a. Wet Meadow | SD-3 |
| 136b. Clayey Meadow | SD-3 |
| 137. Alpine Slopes | RM-1, RM-2 |
| 138. Alpine Meadows | RM-1, RM-2 |
| 139. Subalpine Grassland | RM-1, RM-2 |
| 140. Shallow Subalpine Grassland | RM-1, RM-2 |
| 141. Mountain Meadow | RM-1, RM-2 |
| 142. Mountain Grassland | RM-1 |
| 143. Mountain Grassland | RM-2 |

Range Site Name and Number

Land Resource Area
and Sub Area

144. Dry Mountain Grassland
145. Dry Mountain Grassland

RM-1
RM-2

146. Pine Grassland
147. Pine Grassland

RM-1
RM-2

148. Mountain Shale

RM-1

149. Dry Mountain Shale

RM-1

150. Valley Shale

RM-1

151. Mountain Valley
152. Mountain Valley

RM-1
RM-2

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--High Plains (HP-2, HP-3)
Central Plains and Valleys (CP-2)

TG Section II-E

RANGE SITE - No. 1

1. RANGE SITE NAME: Deep Sand (HP-2, HP-3, CP-2)

2. CLIMATE:

- a. Annual average precipitation for this area averages from approximately 14 to 17 inches. About three-fourths of this amount falls during the period April to October inclusive, with July and August usually recording the highest monthly averages. Spring and summer rainfall is characterized by torrential thundershowers of high intensity and short duration that produce high runoff from unprotected soils. There are extreme fluctuations in the amount of rainfall from year to year and periodic droughts lasting from 3 to 4 years have occurred. Annual rainfall in the area has ranged from a high of 40 inches to as low as 6.15 inches. Winter moisture may occur as either rain or snow and usually averages less than 1/2 inch per month.
- b. Wind velocities in this area are high and average about 5.3 miles per hour on an annual basis. The spring months are characterized by frequent wind storms with velocities in excess of 45 miles per hour which cause excessive erosion on soils not protected by a good cover of vegetation. Humidity is low and evaporation is high, usually averaging 75 inches during the period April to October inclusive.
- c. The principal growing season of native vegetation occurs during the period May through September inclusive. The frost-free season averages 188 days, April 17 to October 22. Summers are hot with maximum temperatures frequently reaching 100°F or more from late May to early September. Winters are characterized by warm, sunny days and cold nights, with occasional northers that may keep temperatures below freezing for several days. Temperatures of 0°F or lower have occurred in about half of the years on record with -18°F the lowest temperature on record in the area. The percentage of sunshine is high averaging 80 percent or more of the possible amount in most years.

3. TOPOGRAPHY AND ELEVATIONS:

This site ranges from approximately 3,700 feet to about 5,500 feet in elevation. The overall topography is level to gently sloping but the micro relief may range from smooth to dune-like.

RANGE SITE - No. 1

4. SOILS:

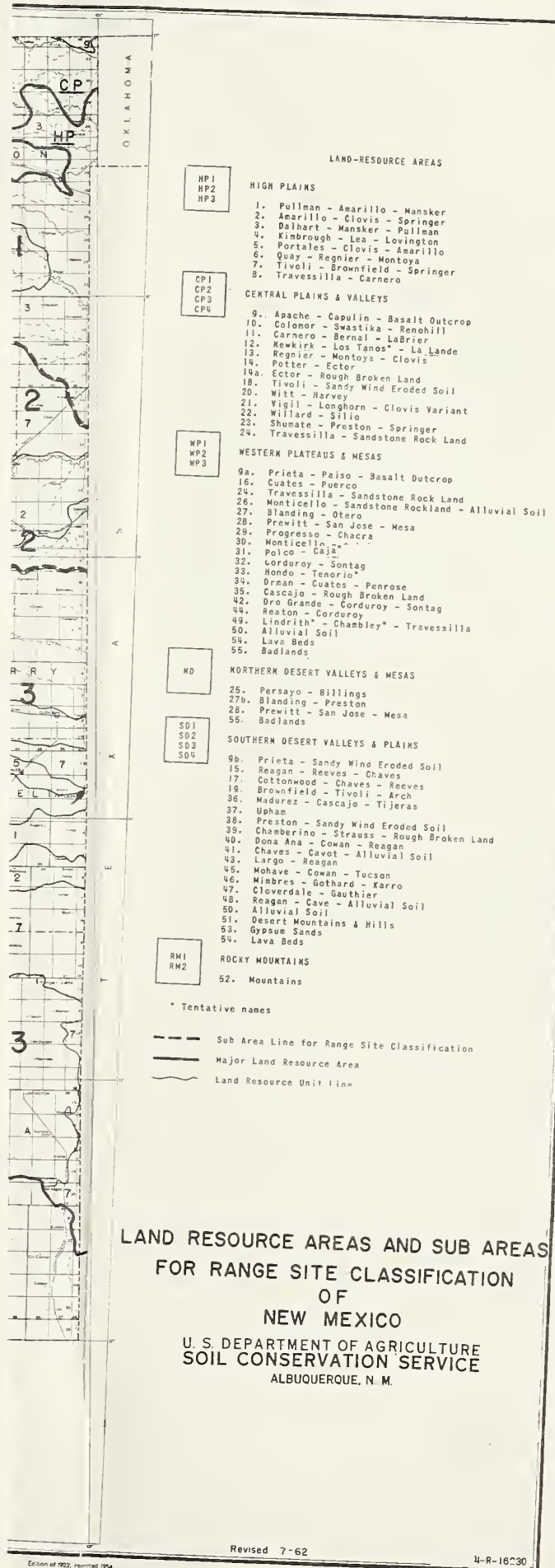
- a. This site consists of deep, loose, poorly consolidated sands. These soils have a rapid water intake rate and low water-holding capacity. They are subject to severe wind erosion and may form active dunes if the natural cover is depleted or destroyed.
- b. Significant soils of this site are:
- Brownfield loamy fine sand
Tivoli fine sand
Springer loamy fine sand
- c. Complete descriptions of the soil series included in this site may be found in the legends for the Standard Soil Surveys in Union, Harding, and Quay Counties.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|-------------------|--------------------|-----------------|
| Sand bluestem | Sand dropseed | Annual weeds |
| Little bluestem | Red lovegrass | Prickly pear |
| Indian grass | Hairy grama | Ragweeds |
| Switch grass | Three-awns | Mesquite |
| Giant sandreed | Tumbling lovegrass | Sand muhly |
| Giant sacaton | Sand sage | Ring muhly |
| Sideoats grama | Yucca | Prickly pear |
| Black grama | Queen's delight | Cholla |
| Lead plant | Shin oak | |

- b. This site in climax or excellent condition is dominated by a tall grass association. Principal decreasing grass species are Hall's bluestem, yellow indiagrass, little bluestem, and sideoats grama. These species should make up 70 percent or more of the total vegetation. The most common increasing species are: Sand dropseed, red lovegrass, tumbling lovegrass, three-awn grasses, sand sage, and Queen's delight. Some woody vegetation, such as squaw bush, little leaf sumac, sand plum, and soapberry, are a part of the climax vegetation of this site but should not exceed 10 percent of the total vegetation.
- c. Total annual herbage yields air dry per acre 3,000 to 3,500 in favorable years.
- d. Total ground cover 35 to 40 percent.





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1. Pellaea - Taorille - Montez
2. Taorille - Clovis - Springer
3. Gellert - Montez - Pellaea
4. Gellert - Clovis - Lovington
5. Lovington - Clovis - Smokey
6. Clovis - Springer - Montez
7. Lovington - Springfield - Springer
8. Springfield - Clovis

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9. *Leopards* - *Camellia* - *Boxell Outcrop*
10. *Callender* - *Smallick* - *Sam III*
11. *Corcoran* - *General* - *Leclerc*
12. *Smallick* - *Los Tones* - *to Lands*
13. *Smallick* - *Wentworth* - *Cleaves*
14. *Wentworth* - *Leclerc*
15. *Leclerc* - *Boyle* - *Brakes Line*
16. *Boyle* - *Boyle* - *Old Brakes* - *Boyle*
17. *Wentworth* - *Leclerc*
18. *Wentworth* - *Leclerc* - *Cleaves* - *Wentworth*
19. *Wentworth* - *Leclerc*
20. *Wentworth* - *Leclerc* - *Cleaves* - *Wentworth*
21. *Wentworth* - *Leclerc* - *Cleaves* - *Wentworth*
22. *Wentworth* - *Leclerc* - *Cleaves* - *Wentworth*
23. *Wentworth* - *Leclerc* - *Cleaves* - *Wentworth*
24. *Wentworth* - *Leclerc* - *Cleaves* - *Wentworth*

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19. *Poliole* - *Poliole* - *Basalt Gully*
20. *Colo* - *Poliole*
21. *Traxavilla* - *Benavente Rock*
22. *Huntville* - *Benavente* - *Subsidence* - *Alluvial Soil*
23. *Sliding* - *Colo*
24. *Penitenti* - *San Jose* - *Mesa*
25. *Frugosa* - *Chico*
26. *Huntville*
27. *Poliole* - *Colo*
28. *Coronado* - *Benavente*
29. *Huntville* - *Traxavilla*
30. *Colo* - *Colo* - *Penitenti*
31. *Coronado* - *San Jose* - *Benavente*
32. *San Jose* - *Coronado* - *Benavente*
33. *San Jose* - *Coronado*
34. *Traxavilla* - *Chico*
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50. *Traxavilla* - *Chico*

25. Paterson - Billings
274. Glending - Preston
29. Frowill - San Jose West

SOUTHERN GREAT PLAINS & PLAINS

15. K. of T. and Wind Erosion Soil
16. Sanguine. Chrysos.
17. Chalkstone. Chrysos. Brown
18. Limestone. Chrysos. Brown
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* Telling News

— — — Sub time line for Hongo Site Classification

Major Land Ownership List

1948 Executive Unit 424

LAND RESOURCE AREAS AND SUB AREAS
FOR RANGE SITE CLASSIFICATION
OF
NEW MEXICO

U S DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ALBUQUERQUE N M

TG Section II-E

RANGE SITE - No. 1

6. SPECIFIC TYPE LOCATION:

Sand Springs, Quay County.

RANGE CONDITION GUIDE

#1

Range Site Name Deep Sand (HP-2, HP-3, CP-2)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|---------------------------------------|-----------|--------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Sand bluestem | Sand dropseed | 10 | Prickly pear |
| 2 | Little bluestem | Red lovegrass | 5 | Rayweed |
| 3 | Yellow Indiangrass | Hairy grama | 5 | Mesquite |
| 4 | Switchgrass | Three awns | 5 | Sand muhly |
| 5 | Giant sand reed | Tumbling lovegrass | T | Ring muhly |
| 4 | Sideoats grama | Sand sage | 10 | Prickly pear |
| 4 | Black grama | Small soapweed | 5 | Cholla |
| 5 | Needle and thread | Shin oak | 10 | |
| 5 | Lead plant | Queen's delight | T | |
| | | Sand plum | T | |

Maximum total percent 30

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 40 | 40 | 30 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 4,000 | | | |
| Unfavorable Years | 2,000 | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Central Plains and Valleys (CP-3)

TG Section II-E

RANGE SITE - No. 2

1. RANGE SITE NAME: Deep Sand (CP-3)

2. CLIMATE:

- a. Main growing period is during the months of May, June, July, and August when the greatest amount of precipitation is received. Annual precipitation amounts may vary from 5 to 40 inches, the average amounting to approximately 14 inches. Summer rains occur as torrential thunderstorms usually of short duration while spring storms are inclined to be more general in nature. Summer temperatures may range up to 105°F during the day to 60° at night. Winter temperatures may drop to as low as -20°F, and drops in temperature may be quite spectacular. Spring winds of high velocity may occur from February to June and can be very damaging to this site. Winter moisture occurs in the form of rain or snow and during some years snowfall amounts may be high and remain as a ground cover for several weeks, inhibiting the movement of livestock and necessitating heavy feeding.
- b. Spring winds damage this site when vegetative cover is sparse.
- c. The growing season on this site extends from May 15 to September 1, normally. Usually there is some growth on range plants as early as April 1, and growth may extend into the fall season as late as November if moisture is adequate.

3. TOPOGRAPHY AND ELEVATIONS:

This site occurs as level terrain or slightly hilly to rolling topography. Elevations vary from 6,000 to 6,700 feet.

4. SOILS:

- a. The soils on this site are deep, coarse textured, unconsolidated sands. Intake rates are high. Soils are very susceptible to wind erosion.
- b. Soils included in this site include the following:

SERIES, TYPES, AND PHASES

Preston loamy fine sand
Tivoli loamy fine sand
Dune sand

RANGE SITE - No. 2

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Hall's bluestem
Little bluestem
Indian grass
Giant dropseed
Indian ricegrass
Sideoats grama
Black grama
Needle & thread grass
New Mexico feathergrass
Winterfat
Big bluestem

Increasers

Sand muhly
Blue grama
Hairy grama
Sand dropseed
Purple lovegrass
Tumble lovegrass
Sandsage
Yucca
Chamise
Bigelow sage
Squawbush
Sandhill muhly
Pinon
Juniper

Invaders

Three-awn
Cactus
Ring muhly
Snakeweed
Horsebrush
Rabbitbrush
Mesquite

- b. In high condition, this site produces dominantly tall grasses with a mixture of mid-grasses being present. Prominant are such species as Hall's bluestem, little bluestem, sand bluestem, Indian grass, giant dropseed, black grama, Indian ricegrass, needle and thread grass, and New Mexico feathergrass. Also present and classified as increasers are blue grama, hairy grama, sand dropseed, purple lovegrass, tumble lovegrass, sand sage, yucca, three-awns. Invaders include oakbrush and gambel oak, cholla, prickly pear, snakeweed, ring muhly, and spiney muhly. Pinon and juniper are tree species that will invade this site with comparative ease.
- c. The decreaseers make up a minimum of 4 percent of the total plant composition.
- d. Total herbage yield varies from 100 to 1,200 pounds per acre on air-dry basis.
- e. Total vegetative density under high condition is approximately 35 percent.

6. SPECIFIC TYPE LOCATION:

Northwest and west of Cedarvale, Gran Quivera, Duran, and a location about 8 miles east of Estancia.

RANGE CONDITION GUIDE

#2

Range Site Name Deep Sand (CP-3)

| Rating | Decreasers | Increasers | Max. % By Wt. | Invaders |
|--------|-------------------------|---------------------------------------|------------------------|--------------|
| | (Count all percent) | (Count no more than percent shown) | | (Count None) |
| 1 | Sand bluestem | Sand muhly | T | |
| 2 | Little bluestem | Sandhill muhly | T | Cholla |
| 3 | Indian grass | Blue grama) | 60 | Pricklypear |
| 5 | Giant dropseed | Hairy grama) | | Ring muhly |
| 2 | Indian ricegrass | Sand dropseed | 10 | Snakeweed |
| 3 | Sideoats grama | Purple lovegrass | 5 | Horsebrush |
| 2 | Black grama | Tumble lovegrass | 5 | Rabbitbrush |
| 4 | Needle and thread | Sand sagebrush | 5 | |
| 4 | New Mexico feathergrass | Yucca spp. | T | |
| 4 | Winterfat | Chamiza | 5 | |
| 3 | Big bluestem | Bigelow sagebrush | T | |
| 5 | Switchgrass | Skunkbush sumac | T | |
| 5 | Giant sandreed | Three-awn | T | |

Maximum total percent 60

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 35 | 25 | 15 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable years | 1,200 | | | |
| Unfavorable years | 100 | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Northern Desert Valleys and Mesas (ND)
Western Plateaus and Mesas (WP-1, WP-2)

TG Section II E

RANGE SITE - No. 3

1. RANGE SITE NAME: Deep Sand (ND, WP-1, WP-2)

2. CLIMATE:

- a. Rainfall averages for this site ranges from 10 inches at Chaco Canyon and Belen to 12 to 14 inches at Zuni, Gallup, Santa Fe, and Magdalena. Rainfall in the form of high intensity thunder showers in a short period of time will vary greatly from year to year. Winter snow accounts for some moisture in the Zuni, Gallup, Chaco Canyon, and Santa Fe areas.
- b. Wind velocities are high in this area in comparison to the rest of the United States. High wind during March and April causes much erosion and evaporation of moisture on unprotected areas.
- c. The growing season ranges from 160 days at Magdalena, Zuni, Gallup, and Chaco Canyon to 170 to 180 at Santa Fe and Laguna.

3. TOPOGRAPHY AND ELEVATION:

- a. The topography is undulating and rolling to gently sloping with uniformly deep sandy soil.
- b. The site occurs at elevations between 5,000 feet at Laguna to 7,000 feet at Ramah, El Morro, and Zuni.

4. SOILS:

- a. Soils of the Deep Sand Range Site are coarse-textured sands to loamy sand. The soils are deep to very deep with rapid infiltration. Runoff will be very small. Only under very high intensity rainfall will runoff occur. Sandy soils yield a high percentage of water, making the site a good forage producer with many areas resulting in post climax vegetation cover. One inch of rain will wet a foot of dry sandy soil. Due to deep penetration, less moisture evaporates.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Preston sand

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|----------------------|-------------------|-----------------|
| Black grama | Threeawn | Pingue |
| Blue grama | Ring muhly | Loco |
| Indian ricegrass | Sand dropseed | Lupine |
| Bluestem (western) | Sandhill muhly | |
| wheatgrass | Spike dropseed | |
| Sideoats grama | Sand sagebrush | |
| Galleta | Pinon | |
| Little bluestem | Juniper | |
| Needleandthreadgrass | Small soapweed | |
| | Cactus spp. | |
| | Broom snakeweed | |
| | Rabbitbrush | |

b. The decreaseers make up 60 percent of the vegetation and the remainder is increasers. There may be 10 percent woody vegetation in excellent condition.

c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.

d. Basal herbage covers from 20 to 30 percent of the ground.

6. SPECIFIC TYPE LOCATION:

Brooks Bryant Ranch north of Pie Town.

Kiwanis Park, south of Gallup.

Zuni Indian Area.

Kembeto Wash at Chaco Canyon.

Sandy Bench, south of Bloomfield.

RANGE CONDITION GUIDE

#3

Range Site Name Deep Sand (ND) (WP-1) (WP-2)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|----------------------|------------------------------|----------------|--------------|
| | (Count all %) | (Count no more than % shown) | % By Wt. | (Count none) |
| 2 | Black grama | Poverty threeawn | 10 | Pingue |
| 2 | Blue grama | Ring muhly | T | Loco |
| 3 | Indian ricegrass | Sand dropseed | 10 | Lupine |
| 4 | Sideoats grama | Spike dropseed | 10 | |
| 2 | Galleta | Sand sagebrush | 5 | |
| 5 | Little bluestem | Pinon | 5 | |
| 5 | Needleandthreadgrass | Juniper | 5 | |
| 5 | Bluestem (western) | Broom snakeweed | T | |
| | wheatgrass | Rubber rabbitbrush | | |
| | | Small soapweed | 5 | |
| | | Sandhill muhly | 5 | |
| | | Cactus spp. | T | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 20 | 10 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-1)

TG Section II-E

RANGE SITE - No. 4

1. RANGE SITE NAME: Deep Sand (SD-1)

2. CLIMATE:

- a. Principal growing season is during the period July to September when approximately 45 percent of the total annual precipitation is received. Summer precipitation is in the form of scattered high intensity rainfall occurring usually in late afternoons. Total annual amounts have varied from 3.78 inches in 1860 to 16.3 inches in 1858 with the average annual calculated to be 8.4 inches. The winter season is ordinarily quite dry but occasional snowfall amounts may be from 6 to 8 inches in depth. This usually melts off in a few days time.
- b. Spring winds, extending from February until June, can be damaging to this site and its vegetative cover. Shifting surface sand makes establishment of grass seedlings difficult.
- c. Temperature extremes vary from about -10°F to 104°F. Growing season actually extends over an approximate period of 198 days beginning in early or mid-April and ending the last of October. A few cool season range plants make both earlier and later growth before and beyond the above dates. Summer or warm season growers make their most growth with the advent of summer rains - about July 1. June is ordinarily a critical month for range plant growth since temperatures are high and precipitation amounts are low. Any plant starting early growth must weather through this extreme period of soil moisture desiccation until adequate summer moisture is received for the resumption of growth.

3. TOPOGRAPHY AND ELEVATIONS:

This site occurs as level terrain or slightly hilly to rolling topography. Ordinarily it is found as moderately sloping breaks of the Rio Grande. Elevation range is from 4,800 feet in the south portion to 5,800 feet in the north extreme of the sub-area.

4. SOILS:

- a. Soils are deep-coarse textured, unconsolidated sands. Permeability ranges from moderately permeable to rapidly permeable. Water holding capacity ranges from moderate to low.
- b. Typical soils include the following:

RANGE SITE - No. 4

4. SOILS: (continued)

- c. Soil series descriptions are to be found in the Standard Soil Survey reports for Valencia, Bernalillo, and Santa Fe Counties.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|-------------------------|--------------------|-----------------|
| Sand reedgrass | Sand muhly | Three-awn |
| Indian ricegrass | Fluffgrass | Prickly pear |
| Big bluestem | Sand sage | Ring muhly |
| Little bluestem | Smokebush | Spiny muhly |
| Hall's bluestem | Policmintha | Horsebrush |
| Blue grama | Senecio | Rabbitbrush |
| Black grama | Bush morning glory | Creosote bush |
| Giant dropseed | Galleta | Mesquite |
| Porter's muhly | Mormon tea | Cholla |
| Needle & threadgrass | Apache plume | |
| New Mexico feathergrass | Spiny muhly | |
| Chamise | Sand dropseed | |
| Winterfat | Mesa dropseed | |
| Hairy grama | Spike dropseed | |
| Sideoats grama | Yucca | |
| | Snakeweed | |

- b. In high condition this site will be dominated by Indian ricegrass, Porter's muhly, Hall's bluestem, little bluestem, blue grama, black grama, giant dropseed, big bluestem, sand reedgrass, sideoats grama, sand bluestem, and chamise. Other species occurring as sub-dominants include sand dropseed, galleta, senecio species, poliomintha, three-awns, and winterfat. Common increasers or invaders on this site are smoke bush, rabbit brush, snake weed, winterfat, sand sage, spiny muhly, sand muhly, and ring grass. At the upper elevational limits of this site pinon and juniper occur as invaders while at the lower elevational limits mesquite and crosotebush will invade the site. Desert willow is found along the watercourses on this site.
- c. Decreaser species make up about 45 percent of the plant composition.
- d. Total herbage yield varies from _____ pounds to _____ pounds per acre.
- e. Density of ground cover is 30 percent.

TG Section II-E

RANGE SITE - No. 4

6. SPECIFIC TYPE LOCATION:

Vicinity of Dalies, intermediate slopes along Highway 66 west of Albuquerque, rolling hills west of Bernalillo.

RANGE CONDITION GUIDE

#4

Range Site Name Deep Sand (SD-1)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|-------------------------|------------------------------------|-----------|---------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 5 | Sand reedgrass | Sand muhly | 5 | Ring muhly |
| 1 | Indian ricegrass | Three-awns | T | Creosote bush |
| 5 | Big bluestem | Fluffgrass | T | Mesquite |
| 4 | Little bluestem | Sand sagebrush | 10 | Prickly pear |
| 3 | Sand bluestem | Broom dalea | 10 | Cholla |
| 3 | Blue grama | Poliomintha | 5 | |
| 3 | Black grama | Butterweed | T | |
| 3 | Sideoats grama | Bush morning glory | T | |
| 4 | Giant dropseed | Galleta | 10 | |
| 4 | Bush muhly | Mormon tea | 5 | |
| 5 | Needle and thread | Apache plume | 5 | |
| 4 | New Mexico feathergrass | Sandhill muhly | T | |
| 4 | Chamiza | Sand dropseed | 5 | |
| 3 | Winterfat | Mesa dropseed | 5 | |
| 5 | Hairy grama | Spike | 15 | |
| | | Yucca | T | |

Maximum total percent 30

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 25 | 15 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-2)

TG Section II-E

RANGE SITE - No. 5

1. RANGE SITE NAME: Deep Sand (SD-2)

2. CLIMATE:

- a. Precipitation averages from 8 to 12 inches and ranges from an all time low of 2.9 inches to a record high of 25.7 inches. The greater part occurs during the months of July, August, and September. There are extreme fluctuations from year to year, with periodic drouths. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages less than half an inch per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. These high winds in March, April, and May cause extensive erosion on unprotected soils. High temperatures, fairly constant winds, and low humidity cause the average annual evaporation to range up to 107 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during July, August, and September. The growing season of the native warm season plants begins after the last frost, March 29 to April 23, and continues as moisture is available until October 15 to November 12, which are the average dates ending the frost free period. Winters are generally mild, however, there is a recorded low of -10°F. The maximum summer temperature on record is 110°F. Average annual temperatures range from 58°F to 60°F.

3. TOPOGRAPHY AND ELEVATIONS:

This site lies between 4,000 and 5,500 feet elevation. The topography is generally level to gently undulating. Slopes may vary from 0 to 10 percent with an average of 2 percent.

4. SOIL:

- a. Soils of the Deep Sand site are coarse textured, with loose open subsoils. They are deep over a wide variety of materials. They are subject to wind erosion when plant cover is sparse. Nearly all precipitation enters the soil but some may be lost to deep percolation. Water holding capacity is low. This site is extremely difficult to revegetate when it has been depleted.
- b. The significant soils in this site may include one or more of the following soils:

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SERIES, TYPES, AND PHASES

#5

Cowan gravelly loamy sand
Cowan gravelly loamy sand, over gravel
Cowan loamy sand
Cowan sands
Cowan sandy loam
Cowan sands, gravelly substratum
Tivoli, fine sand

- c. Complete soils series descriptions are available in the Soil Survey Descriptive Legend, or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Sideoats grama
Black grama
Sand bluestem
Giant dropseed
Blue grama
Arizona cottontop
Little bluestem
Indian ricegrass
Giant reed
Bush muhly

Increasers

Mesa dropseed
Sand dropseed
Spike dropseed
Threeawns
Chamiza
Winterfat
Sand sagebrush
Range ratany
Soaptree yucca
Broom snakeweed
Longleaf ephedra
Mescat acacia
Catclaw
Wolfberry
Broom dalea
Cactus
Loco
Amsonia

Invaders

Mesquite
Burrograss
Burroweed

- b. The decreaseers make up 60 percent of the vegetation and the remainder may be increasers. There may be 20 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is 650 to 950 pounds per acre. *
- d. Herbage covers 15 to 20 percent of the ground surface.

6. TYPE LOCATION OF THIS SITE:

Sec. 29, T 19 S, R 9E, on the Roy Holcomb Ranch (Otero County). Just north and adjacent to Gage, New Mexico, Luna County.

North of Lordsburg, New Mexico, in Sec. 22, T 21S, R 18W, Hidalgo County.

* Based on limited plot clippings and estimates.

RANGE CONDITION GUIDE

#5

Range Site Name Deep Sand (SD-2)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|-------------------|---------------------------------|-----------|--------------|
| | (Count all %) | (Count no more than % shown) | By Wt. | (Count None) |
| 1 | Sideoats grama | Mesa dropseed | 20 | Mesquite |
| 1 | Black grama | Sand dropseed | 20 | Burrograss |
| 1 | Bush muhly | Spike dropseed | 20 | Burroweed |
| 2 | Sand bluestem | Threeawns | 15 | |
| 3 | Little bluestem | Chamiza | 20 | |
| 3 | Giant dropseed | Common winterfat | 20 | |
| 4 | Blue grama | Sand sagebrush | 20 | |
| 4 | Arizona cottontop | Range ratany | 5 | |
| 5 | Indian ricegrass | Soaptree Yucca | 5 | |
| 5 | Giant reed | Broom Snakeweed | T | |
| | | Longleaf Ephedra | T | |
| | | Mescat Acacia | T | |
| | | Catclaw | T | |
| | | Wolfberry | T | |
| | | Broom dalea | T | |
| | | Cactus | T | |
| | | Loco | T | |
| | | Amsonia | T | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 15 | 10 | 5 | Any |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 950 | | | |
| Unfavorable Years | | | | |

6-7-62
I.W.D.

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-3)

TG Section II-E

RANGE SITE - No. 6

1. RANGE SITE NAME: Deep Sand (SD-3)

2. CLIMATE:

- a. Arid to semi-arid climate with an annual precipitation for this resource area averaging from 11 to 15 inches. The wettest year on record was at Ft. Sumner (41.37 inches) and the driest year was at Carlsbad (2.95 inches). Approximately 75 percent of the annual rainfall occurs from May to October inclusive. June, July, August, and September are normally the months of highest rainfall. Summer rainfall is characterized by torrential thundershowers of high intensity and short duration that produce high runoff from unprotected soils. There are extreme fluctuations in the amount of precipitation from year to year, and periodic droughts have occurred, some lasting for 4 years or longer. More years of below average rainfall can be expected than those above the average precipitation. Winter moisture may occur in the form of rain and/or snow and usually averages less than half an inch per month. When snow occurs, it melts quickly, and snow cover persisting as long as 1 week is unusual.
- b. Wind velocities in this area are high. February, March, April, and May are characterized by frequent wind storms with velocities in excess of 50 miles per hour, causing severe wind erosion on soils unprotected by adequate vegetation. Humidity is low and evaporation is high, averaging from 70 to 85 inches to in excess of 120 inches (from an evaporation pan).
- c. The frost free season of this sub-area ranges from about 187 days at Ft. Sumner in the northern part to 228 days at Carlsbad Caverns in the southern part. The growing season of the native warm season plants begins after the last frost, April 2 to 19 (South to North), and continues as moisture is available until the latter part of October or the first of November ending the frost free period. Winters are characteristically warm and open, with occasional "northers" dropping the temperature to 0°F or lower for short periods of time in about one-third of the years on record. Occasional and infrequent temperature as low as -30°F have occurred. Summers are hot with temperatures of over 105°F occurring frequently from May through September. The annual average temperature varies from 59°F at Roswell to 63°F at Carlsbad.

3. TOPOGRAPHY AND ELEVATIONS:

This range site occurs on gently undulating plains or flats, with slopes broken by occasional bottomland sites or stony hills. Slopes average 1 to 3 percent and may go up to 15 percent. Elevations range from 3,100 feet around Jal and Carlsbad areas to 4,200 feet around Ft. Sumner area. Areas around Lulu, Cornudas Mountains, and small isolated places in the resource area may be up to 5,000 feet in elevation.

RANGE SITE - No. 6

4. SOILS:

- a. The significant soils which characterize this site have sandy surfaces 18 inches or more deep. Nearly all precipitation enters the soil but moisture holding capacity is low to medium. The soils on this site have a fair soil moisture relationship due to the low moisture holding capacity and low wilting coefficient of the soil. If unprotected by plant cover, the soils are highly susceptible to sand dune and hummock formation, and water erosion from intense storms.
- b. The significant soils in this site may include one or more of the following soils:

SERIES, TYPES, AND PHASES

Harroun loamy sand
Tivoli sand
Brownfield fine sand
Tivoli fine sand
Gomez fine sand
Springer (like) fine sand

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legend or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Bush muhly
Little bluestem
Sand bluestem
Black grama
Sideoats grama
Plains bristlegrass
Indiangrass
Switchgrass
Fall witchgrass

Increasers

Sand paspalum
Blue grama
Hairy grama
Red lovegrass
Hall's panicum
Sand dropseed
Tall dropseed
Three-awns
Sand muhly
Desert senna
Mesquite
Little soapweed
Catclaw mimosa

Invaders

Fluffgrass
Broom snakeweed
Croton
White mustard
Bladder pod mustard
Candy top mustard
Ring muhly
Annuals

RANGE SITE - No. 6

5. POTENTIAL VEGETATION: (continued)

Decreasers

Increasers

Invaders

Spiny allthorn
Havard oak
Skunkbush sumac
Sand sagebrush
Sandbur
Groundsel
Queen's delight
Wright eriogonum
Tumble lovegrass
Scratchgrass

The decreaseers make up 50 to 60 percent of the vegetation and the remainder is increasers.

- b. The potential vegetation is bush muhly, black grama, side-oats grama, sand bluestem, and little bluestem. Blue grama, hairy grama, red lovegrass, sand paspalum, sand dropseed, three-awns, tall dropseed, and sand muhly may make up 30 percent. Browse, which includes shinnery, catclaw, mimosa, yucca, mesquite, and skunkbush sumac, may make up 10 percent. Common forbs such as groundsel, desert senna, and Wright eriogonum may make up 5 percent.
- c. Annual herbage yields based on plot clippings vary from 3,200 pounds per acre in favorable years to 800 pounds per acre in less favorable years when the site is in excellent condition. *
- d. Basal herbage covers 15 to 20 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

SW 1/4 of Sec. 18, T 9S, R 27E in Chaves County.

* Based on limited clipping data and estimates.

RANGE CONDITION GUIDE

#6

Range Site Name Deep Sand (SD-3)

| Rating | Decreasers | Increasers | Max. % By Wt. | Invaders |
|--------|------------------------|---------------------------------------|------------------------|---------------------|
| | (Count all percent) | (Count no more than percent shown) | | (Count None) |
| 1 | Little bluestem | Blue grama | 25 | Fluffgrass |
| 1 | Sand bluestem | Sand paspalum | 10 | Broom snakeweed |
| 2 | Black grama | Hairy grama | 10 | Croton |
| 3 | Bush muhly | Sand dropseed | 10 | White mustard |
| 3 | Sideoats grama | Tall dropseed | 10 | Bladder pod mustard |
| 5 | Plains bristlegrass | Threeawns | 10 | Candy top mustard |
| 5 | Indiangrass | Red lovegrass | 5 | Ring muhly |
| 5 | Switchgrass | Halls panicum | 5 | Annuals |
| 5 | Fall witchgrass | Mesquite | 5 | |
| | | Little soapweed | 5 | |
| | | Catclaw mimosa | 5 | |
| | | Sand sagebrush | 5 | |
| | | Desert senna | T | |
| | | Spiny allthorn | T | |
| | | Havard oak | 10 | |
| | | Skunkbush sumac | T | |
| | | Sand bur | T | |
| | | Queen delight | T | |
| | | Groundsel | T | |
| | | Wright eriogonum | T | |
| | | Tumble lovegrass | T | |
| | | Scratch grass | T | |

Maximum total percent 45

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 30 | 20 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable years | 3,200 | | | |
| Unfavorable years | 800 | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--High Plains (HP-1)
Central Plains and Valleys (CP-1)

TG Section II-E

RANGE SITE - No. 7

1. RANGE SITE NAME: Sandy Plains (HP-1, CP-1)

2. CLIMATE:

- a. Annual precipitation averages from 15 to 18 inches. Approximately three-fourths of the annual average occurs during the period April to October inclusive. July and August most commonly receive the highest monthly totals. There are extreme fluctuations from year to year with periodic droughts that have lasted as long as 4 years. Annual rainfall in the area has fluctuated from a high of 37.65 inches to a low of 5.54 inches in a 10-year period. Summer rainfall is characterized by torrential thundershowers producing high runoff from unprotected soils. Winter precipitation, which averages about 1/2 inch per month, usually occurs in the form of snow.
- b. Wind velocities for the area are high averaging about 4.5 miles per hour on an annual basis. Spring windstorms occur frequently with velocities in excess of 45 miles per hour causing severe wind erosion on soils inadequately protected by vegetation. Humidity is low and evaporation high, averaging 60 inches or more during the period April through October.
- c. The frost-free season ranges from about 135 days at the higher elevations to about 165 days at lower elevations. The principal growing season for native plants occurs from May 15 to September 15 if sufficient moisture is available. Sub-zero temperatures will usually occur every year with minimums of -20°F not uncommon. Summers are characterized by warm days and cool nights with maximum temperatures seldom reach 100°F. The percentage of sunshine is high, averaging about 80 percent of the possible amount.

3. TOPOGRAPHY AND ELEVATIONS:

Topography of this site varies from nearly level to somewhat undulating. Typically the slope is less than 5 percent but occasionally may range to 10 percent. Elevation ranges from 5,000 feet to approximately 7,000 feet with the highest portion of the site occurring near the foothills of the Sangre de Cristo Mountains north and east of Rainsville in Mora County.

RANGE SITE - No. 7

4. SOILS:

- a. Soils of this site are moderately deep to deep with loamy sand or sandy loam surface textures and usually with medium textured subsoils. These soils take water rapidly and have moderate to good water-holding capacity in the subsoil. The ability of the soils in this site to absorb water rapidly, together with their relatively low water-holding capacity, provides a more favorable soil moisture relationship under limited and erratic rainfall than occurs on associated heavier textured soils. These soils are particularly susceptible to wind erosion when the vegetative cover is removed either by cultivation or excessive use.
- b. Significant soils of this range site are:
 - Clovis loamy fine sands
 - Dalhart loamy fine sands
 - Dalhart loamy fine sands, strongly developed varient
 - Likes loamy fine sands
 - Dalhart loamy fine sands, sandy substratum
 - Mansker loamy fine sands
 - Springer fine sandy loam
- c. Complete soil series descriptions for the soils included in the site may be found in the Standard Soil Survey Legend for Colfax, Harding, and Union Counties.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|-------------------------|-------------------|-----------------|
| Little bluestem | Hairy grama | Ring muhly |
| Sideoats grama | Blue grama | Hairy tridens |
| Sand bluestem | Red lovegrass | Snakeweed |
| Black grama | Sand dropseed | Gumweed |
| Needle and thread | Silver beard | Ragweeds |
| New Mexico feathergrass | Three-awns | Annual weeds |
| | Sand muhly | |
| | Sand sage | |
| | Queen's delight | |

- b. In good to excellent condition this site is dominated by a mixture of tall and mid grasses. Little bluestem and sideoats grama are usually the most abundant species and together with sand bluestem and Indian

RANGE SITE - No. 7

5. POTENTIAL VEGETATION: (continued)

grass should total more than 50 percent of the vegetation. Principal increasing species are blue grama, hairy grama, sand dropseeds, sand sage, red lovegrass, and three-awns. Woody plants commonly occurring on this site are soapweed (Yucca), sand sage, and squaw bush. In lower condition classes the sand sage and/or soapweed may increase to the extent that they are the dominant vegetation in association with such grasses as sand dropseed, perennial three-awns, red lovegrass, and tumbling lovegrass.

c. Yield - air-dry herbage per acre in favorable years 2,500 to 3,000 pounds.

d. Ground cover - 35 to 40 percent.

6. SPECIFIC TYPE LOCATION:

Along Highway 18 approximately 1 mile north of Steed Post Office.

RANGE CONDITION GUIDE

#7

Range Site Name Sandy Plains (HP-1, CP-1)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|-------------------------|------------------------------------|----------------|---------------|
| | (Count all percent) | (Count no more than percent shown) | % By Wt. | (Count None) |
| 1 | Little bluestem | Hairy grama) | 25 | Ring muhly |
| 2 | Sideoats grama | Blue grama) | | Sand muhly |
| 3- | Sand bluestem | Red lovegrass | 5 | Snakeweed |
| 4 | Black grama | Sand dropseed | 10 | Gumweed |
| 5 | Needle and thread | Silver bluestem | 5 | Ragweed |
| 5 | New Mexico feathergrass | Three-awns | 5 | Galleta |
| 5 | Yellow indiagrass | Sand muhly | T | Buffalo grass |
| | | Sand sage | 5 | |

Maximum total percent 50

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 40 | 35 | 25 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--High Plains (HP-2, HP-3)
Central Plains and Valleys (CP-2)

TG Section II-E

RANGE SITE - No. 8

1. RANGE SITE NAME: Sandy Plains (HP-2, HP-3, CP-2)

2. CLIMATE:

- a. Annual precipitation for this area averages from approximately 14 to 17 inches. About three-fourths of this amount occurs during the period April to October inclusive, with July and August usually recording the highest monthly averages. Spring and summer rainfall is characterized by torrential thundershowers of high intensity and short duration that produce high runoff from unprotected soils. There are extreme fluctuations in the amount of rainfall from year to year and periodic droughts lasting from 3 to 4 years have occurred. Annual rainfall in the area has ranged from a high of 40 inches to as low as 6.15 inches. Winter moisture may occur as either rain or snow and usually averages less than 1/2 inch per month.
- b. Wind velocities in this area are high and average about 5.3 miles per hour on an annual basis. The spring months are characterized by frequent wind storms with velocities in excess of 45 miles per hour which cause excessive erosion on soils not protected by a good cover of vegetation. Humidity is low and evaporation is high, usually averaging 75 inches during the period April to October inclusive.
- c. The principal growing season of native vegetation occurs during the period May through September inclusive. The frost-free season averages 188 days, April 17 to October 22. Summers are hot with maximum temperatures frequently reaching 100°F or more from late May to early September. Winters are characterized by warm sunny days and cold nights, with occasional "northers" that may keep temperatures below freezing for several days. Temperatures of 0°F or lower have occurred in about half of the years of records with -18°F the lowest temperature of record in the area. The percentage of sunshine is high, averaging 80 percent or more of the possible amount in most years.

3- TOPOGRAPHY AND ELEVATIONS:

This site consists of nearly level to gently sloping areas of Plains Upland with smooth to undulating surface topography. It occurs at elevations of approximately 3,500 feet up to about 5,500 feet throughout the resource area.

RANGE SITE - No. 8

4. SOILS:

- a. The soils of this site have sandy loam to loamy fine sand surfaces with medium-textured subsoils. These soils are deep to moderately deep, take water rapidly, and have good water-holding capacity.
- b. Significant soil series of this range site are:
 - Amarillo fine sandy loam
 - Arch loamy fine sands
 - Clovis loamy fine sands
 - Dalhart loamy fine sands
 - Likes loamy sands
 - Mansker loamy fine sands
 - Springer fine sandy loam
- c. Complete soil series descriptions can be found in the legend for Standard Soil Surveys in Harding, Quay, and Union Counties.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Little bluestem
Sideoats grama
Black grama
Sand bluestem
New Mexico feathergrass
Needle and thread
Lead plant

Increasers

Hairy grama
Blue grama
Sand dropseed
Red lovegrass
Silver beardgrass
Sand muhly
Three-awns
Sand sage
Tumble lovegrass

Invaders

Ring muhly
Hairy tridens
Snakeweed
Tree cactus
Prickly pear
Queen's delight
Annual three-awns

- b. This site in good to excellent condition supports a mixture of tall and mid-grass. Principal shrubs found on this site are sand sage and soapweed yucca. The dominant climax grass species are: Little bluestem, sideoats grama, sand bluestem, and black grama. These species should make up more than 50 percent of the total composition. Principal increasing species are blue grama, hairy grama, sand dropseed, red lovegrass, tumble lovegrass, three-awns, sand sage, and yucca.
- c. Annual yields of air-dry herbage in favorable seasons ranges from 2,000 to 2,500 pounds.

TG Section II-E

RANGE SITE - No. 8

5. POTENTIAL VEGETATION: (continued)

d. Ground cover - approximately 35 percent.

6. SPECIFIC TYPE LOCATION:

Near Hudson, Quay County, New Mexico.

RANGE CONDITION GUIDE

#8

Range Site Name Sandy Plains (HP-2, HP-3, CP-2)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|-------------------------|------------------------------------|----------------|-----------------|
| | (Count all percent) | (Count no more than percent shown) | % By Wt. | (Count None) |
| 1 | Little bluestem | Hairy grama) | 25 | Ring muhly |
| 2 | Sideoats grama | Blue grama) | | Hairy tridens |
| 3 | Black grama | Sand dropseeds | 5 | Snakeweed |
| 4 | Sand bluestem | Red lovegrass | T | Cholla cacti |
| 5 | New Mexico feathergrass | Silver bluestem | 5 | Prickly pear |
| 5 | Needle and thread | Sand muhly | T | Queen's delight |
| 5 | Lead plant | Three-awns | 5 | Annuals |
| 5 | Gummy lovegrass | Sand sage | 10 | |
| | | Tumble lovegrass | T | |

Maximum total percent 50

Percent by Weight of Potential Vegetation

Minimum Percent Density

Range Condition Classification

Excellent Good Fair Poor

76-100 51-75 50-26 0-25

25 25 20 XX

Approximate Air-Dry Forage Yields per Acre By:

Range Condition Classification

Excellent Good Fair Poor

Favorable Years

2,500

Unfavorable Years

500

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E.W.W.

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-3)

TG Section II-E

RANGE SITE - No. 9

1. RANGE SITE NAME: Sandy Plains (SD-3)

2. CLIMATE:

- a. Arid to semi-arid climate with an annual precipitation for this resource area averaging from 11 to 15 inches. The wettest year on record was at Ft. Sumner (41.37 inches) and the driest year was at Carlsbad (2.95 inches). Approximately 75 percent of the annual rainfall occurs from May to October inclusive. June, July, August, and September are normally the months of highest rainfall. Summer rainfall is characterized by torrential thundershowers of high intensity and short duration that produce high runoff from unprotected soils. There are extreme fluctuations in the amount of precipitation from year to year, and periodic droughts have occurred, some lasting for 4 years or longer. More years of below average rainfall can be expected than those above the average precipitation. Winter moisture may occur in the form of rain and/or snow and usually averages less than half an inch per month. When snow occurs, it melts quickly and snow cover persisting as long as one week is unusual.
- b. Wind velocities in this area are high. February, March, April, and May are characterized by frequent wind storms with velocities in excess of 50 miles per hour causing severe wind erosion on soils unprotected by adequate vegetation. Humidity is low and evaporation is high, averaging from 70 to 85 inches to in excess of 120 inches (from an evaporation pan).
- c. The frost free season of this sub-area ranges from about 187 days at Ft. Sumner in the northern part to 228 days at Carlsbad Caverns in the southern part. The growing season of the native warm season plants begins after the last frost, April 2 to 19 (South to North) and continues as moisture is available until the latter part of October or the first of November ending the frost free period. Winters are characteristically warm and open, with occasional "northers" dropping the temperatures to 0°F or lower for short periods of time in about one-third of the years on record. Occasional and infrequent temperatures as low as -30°F have occurred. Summers are hot with temperatures of over 105°F occurring frequently from May through September. The annual average temperature varies from 59°F at Roswell to 63°F at Carlsbad.

3. TOPOGRAPHY AND ELEVATIONS:

The topography of this site is level to slightly rolling plains broken by occasional shallow rocky ridges and loamy narrow bottomland. This site is generally intermixed with Loamy Upland, Shallow Upland, or Loamy Bottomland sites. Average slope for this site is 1 to 3 percent with some slopes up to 10 percent. Elevations range from 3,100 feet around Jal and Carlsbad area to 4,200 feet around the Ft. Sumner area. Areas around Lulu, Cornudas Mountains, and small isolated places in the resource area may be up to 5,000 feet in elevation.

4. SOILS:

- a. The soils of this site are loamy fine sands and loamy sands and may be underlain by caliche at a depth of 2 feet or more. Moisture intake rates are rapid and moisture holding capacity is low to medium. Soil and moisture relationships are good and sub soil and sub strata permeabilities are moderate to rapid. If unprotected by plant cover, the soils are highly susceptible to wind erosion and water erosion from intense storms.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Portales loamy sand
Springer loamy sand
Likes loamy sand
Springer loamy fine sand
Clovis loamy fine sand

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legends or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Sideoats grama
Black grama
Little bluestem
Blue grama

Increasers

Hairy grama
Sand paspalum
Three-awns
Tumble lovegrass

Invaders

Croton
Sandbur
Wright eriogonum
Broom snakeweed

5. POTENTIAL VEGETATION: (continued)

Decreasers

Vine-mesquite
New Mexico feathergrass
Sand bluestem
Bottlebrush squirreltail
Plains bristlegrass

Increasers

Sand dropseed
Purple lovegrass
Windmillgrass
Sand muhly
Loco
Desert senna
Little soapweed
Mesquite
Catclaw mimosa
Skunkbush sumac
Prickly pear
Sand sagebrush
Groundsel
Queen's delight

Invaders

Annuals
Havard oak

The decreaseers make up 60 percent of the vegetation and the remainder is increasers.

- b. The potential species for this site which make up 50 to 60 percent are: Blue grama, black grama, sideoats grama, little bluestem, and sand bluestem. Hairy grama, three-awns, dropseed, fluff grass, sandbur, sand muhly, and windmill grass may make up 25 percent. Browse, which includes skunkbush sumac, shinnery, yucca, and mesquite may make up 10 percent. Forbs such as desert senna, loco, and groundsel may make up 5 percent.
- c. Annual herbage yields based on plot clippings and weights vary from 2,500 pounds per acre in favorable years to 700 pounds per acre in less favorable years when the site is in excellent condition. *
- d. Basal herbage covers 30 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

E 1/4 corner Sec. 36, T 75, R 27E, in Chaves County.

* Based on limited clipping data and estimates.

RANGE CONDITION GUIDE

#9

Range Site Name Sandy Plains (SD-3)

| Rating | Decreasers | Increasers | Max. % By Wt. | Invaders |
|--------|--------------------------|---------------------------------------|------------------------|------------------|
| | (Count all percent) | (Count no more than percent shown) | | (Count None) |
| 1 | Sideoats grama | Hairy grama | 15 | Croton |
| 1 | Black grama | Sand paspalum | 15 | Sand bur |
| 2 | Little bluestem | Threeawns | 10 | Wright eriogonum |
| 2 | Blue grama | Tumble lovegrass | T | Broom snakeweed |
| 5 | Vine-mesquite | Sand dropseed | 15 | Havard oak |
| 5 | New Mexico feathergrass | Purple lovegrass | 5 | Annuals |
| 3 | Sand bluestem | Windmillgrass | 5 | |
| 5 | Bottlebrush squirreltail | Sand muhly | 5 | |
| 5 | Plains bristlegrass | Loco | T | |
| | | Desert senna | T | |
| | | Mesquite | T | |
| | | Catclaw mimosa | T | |
| | | Skunkbush sumac | T | |
| | | Prickly pear | T | |
| | | Sand sagebrush | 5 | |
| | | Groundsel | T | |
| | | Queen delight | 5 | |
| | | Little scapweed | 5 | |

| | | | | | |
|-------------------------------------------|--|--------------------------------|-------|-------|------|
| Maximum total percent | | 40 | | | |
| | | Range Condition Classification | | | |
| | | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | | 30 | 30 | 20 | XX |

| | | | | | |
|------------------------------------------------|-------|--------------------------------|------|------|------|
| Approximate Air-Dry Forage Yields per Acre By: | | | | | |
| | | Range Condition Classification | | | |
| | | Excellent | Good | Fair | Poor |
| Favorable Years | 2,500 | | | | |
| Unfavorable Years | 700 | | | | XX |

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E.C.S.

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--High Plains (HP-1)
Central Plains and Valleys (CP-1)

TG Section II-E

RANGE SITE - No. 10

1. RANGE SITE NAME: Sandy Upland (HP-1, CP-1)

2. CLIMATE:

- a. Annual precipitation averages from 15 to 18 inches. Approximately three-fourths of the annual average occurs during the period April to October inclusive. July and August most commonly receive the highest monthly totals. There are extreme fluctuations from year to year with recurrent droughts that have lasted as long as 4 years. Annual rainfall in the area has fluctuated from a high of 37.65 inches to a low of 5.54 inches in a 10 year period. Summer rainfall is characterized by torrential thunder-showers producing high runoff from unprotected soils. Winter precipitation which averages about 1/2 inch per month usually occurs in the form of snow.
- b. Wind velocities for the area are high, averaging about 4.5 miles per hour on an annual basis. Spring windstorms occur frequently with velocities in excess of 45 miles per hour, causing severe wind erosion on soils inadequately protected by vegetation. Humidity is low and evaporation high, averaging 60 inches or more during the period April through October.
- c. The frost-free season ranges from about 135 days at the higher elevations to about 165 days at lower elevations. The principal growing season for native plants occurs from May 15 to September 15 if sufficient moisture is available. Sub zero temperatures will usually occur every year with minimums of -20°F not uncommon. Summers are characterized by warm days and cool nights with maximum temperatures seldom reaching 100°F. The percentage of sunshine is high, averaging about 80 percent of the possible amount.

3. TOPOGRAPHY AND ELEVATIONS:

This site occurs intermittently throughout the sub-resource areas. At elevations of approximately 5,000 feet to about 7,000 feet the surface topography is generally smooth to slightly undulating with slopes generally from 0 to 5 percent. Occasional small areas may have slopes in excess of 5 percent.

RANGE SITE - No. 10

4. SOILS:

a. This site includes medium to deep soils with fine sandy loam surface textures underlain by medium to fine textured subsoils. These soils have medium to high surface infiltration rates and good water-holding characteristics in the subsoil. The ability of these soils to absorb moisture quickly makes them more responsive to light or erratic rainfall than adjacent sites having heavier textured surface soils.

b. Soil series and types included in this site are:

| | |
|--------------------------|--------------------------|
| Berthoud fine sandy loam | Likes fine sandy loam |
| Bippus fine sandy loam | Mansker fine sandy loam |
| Clovis fine sandy loam | Portales fine sandy loam |
| Dalhart fine sandy loam | Pullman fine sandy loam |
| Labrier fine sandy loam | Zita fine sandy loam |

c. Complete soil series descriptions for these soils can be found in the Standard Soil Survey Legends for Colfax, Harding, and Union Counties.

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|-------------------------|-------------------|-----------------|
| Little bluestem | Blue grama | Galleta |
| Sidecats grama | Buffalograss | Sand sagebrush |
| Sand bluestem | Hairy grama | Broom snakeweed |
| Vine-mesquite | Sand dropseeds | Prickly pear |
| Needle and thread | Three-awns | Ragweed |
| New Mexico feathergrass | Sand muhly | Annuals |
| | Yucca | Cholla |
| | Fringed sage | |

b. In climax condition this site supports a mixture of mid and short grasses. Little bluestem and sidecats grama are the principal decreasing species and should make up about 40 percent of the plant cover. Under grazing pressure little bluestem and sidecats grama decrease to the extent that the site is often characterized by a close turf of blue grama and buffalo. Small soapweed (Yucca glauca) is the most abundant woody plant occurring on this site. Sand sage usually does not occur. This site, when adjacent to seed sources, may be invaded by one-seeded juniper.

c. Yields: Air dry herbage approximately 1,600 pounds per acre in favorable years.

TG Section II-E

RANGE SITE - No. 10

5. POTENTIAL VEGETATION: (continued)

d. Ground cover: Approximately 35 to 40 percent.

6. SPECIFIC TYPE LOCATION:

5 miles south of Texline on west side of State Line road.

RANGE CONDITION GUIDE

#10

Range Site Name Sandy Upland (HP-1, CP-1)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|-------------------------|------------------------------------|----------------|--------------|
| | (Count all percent) | (Count no more than percent shown) | % By Wt. | (Count None) |
| 2 | Little bluestem | Blue grama | 30 | Galleta |
| 2 | Sideoats grama | Buffalo grass | 5 | Sand sage |
| 5 | Sand bluestem | Hairy grama | 5 | Snakeweed |
| 5 | Vine mesquite | Sand dropseed | 5 | Prickly pear |
| 5 | Needle and thread | Three-awns | 5 | Ragweed |
| 5 | New Mexico feathergrass | Sand muhly | T | Gumweed |
| | | Little soapweed | 5 | Cholla |
| | | Fringed sage | 5 | Annuals |

Maximum total percent 60

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 30 | 20 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 1,600 | | | |
| Unfavorable Years | 800 | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--High Plains (HP-2)
Central Plains and Valleys (CP-2)

TG Section II-E

RANGE SITE - No. 11

1. RANGE SITE NAME: Sandy Upland (HP-2, CP-2)

2. CLIMATE:

- a. Annual average precipitation for this area averages from approximately 14 to 17 inches. About three-fourths of this amount occurs during the period April to October inclusive, with July and August usually recording the highest monthly averages. Spring and summer rainfall is characterized by torrential thundershowers of high intensity and short duration that produce high runoff from unprotected soils. There are extreme fluctuations in the amount of rainfall from year to year, with periodic droughts lasting from 3 to 4 years. Annual rainfall in the area has ranged from a high of 40 inches to as low as 6.15 inches. Winter moisture may occur as either rain or snow, and usually averages less than 1/2 inch per month.
- b. Wind velocities in this area are high and average 5.3 miles per hour on an annual basis. The spring months are characterized by frequent windstorms with velocities in excess of 45 miles per hour. Excessive erosion occurs on soils not protected by a good cover of vegetation. Humidity is low and evaporation is high, usually averaging 75 inches during the period April to October inclusive.
- c. The principal growing season of native vegetation occurs during the period May through September inclusive. The frost-free season averages 188 days from April 17 to October 22. Summers are hot with maximum temperatures frequently reaching 100°F or more from late May to early September. Winters are characterized by warm sunny days and cold nights, with occasional "northerners" that may keep temperatures below freezing for several days. Temperatures of 0°F or lower have occurred in about half of the years of records with -15°F the lowest temperature of record in the area. The percentage of sunshine is high, averaging 80 percent or more of the possible amount in most years.

3. TOPOGRAPHY AND ELEVATIONS:

This site consists of nearly level to gently sloping areas of Plains Upland. It ranges in elevation from approximately 3,600 feet to about 5,500 feet.

RANGE SITE - No. 11

4. SOILS:

- a. The soils of this site are deep to moderately deep and have fine sandy loam surface textures with medium textured, moderately permeable subsoils. These soils take water rapidly at the surface and have good water-holding capacity in the subsoil.
- b. Significant soil series of this site are:
- | | |
|--------------------------|--------------------------|
| Amarillo fine sandy loam | Likes fine sandy loam |
| Arvano fine sandy loam | Mansker fine sandy loam |
| Berthoud fine sandy loam | Portales fine sandy loam |
| Bippus fine sandy loam | Zita fine sandy loam |
| Clovis fine sandy loam | |
- c. Detailed descriptions of the soil series contained in this site can be found in the Standard Soil Survey Legends for Harding, Quay, and Union Counties.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Little bluestem
Sideoats grama
Black grama
Needle and thread
New Mexico feathergrass

Increasers

Blue grama
Hairy grama
Sand muhly
Sand dropseed
Three-awns
Yucca
Buffalo grass

Invaders

Galleta
Ring muhly
Sand sage
Prickly pear
Mesquite

- b. In composition of the vegetation the climax dominants which make up from 50 to 55 percent of the cover are little bluestem, sideoats grama, and black grama. The remainder consists of blue grama, hairy grama, sand dropseed, and buffalo grass. In lower condition blue grama and buffalo grass may dominate the site totaling 80 percent or more of the total cover.
- c. Annual herbage yields of this site, based on limited plot clipping, is 1,200 to 1,600 pounds of air dry material per acre.
- d. Herbage density covers from _____ percent to _____ percent of the ground.

6. SPECIFIC TYPE LOCATION:

4 miles northeast of Tucumcari on Highway 54.

RANGE CONDITION GUIDE

#11

Range Site Name Sandy Upland (HP-2, CP-2)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|-------------------------|------------------------------------|----------------|---------------|
| | (Count all percent) | (Count no more than percent shown) | % By Wt. | (Count None) |
| 2 | Little bluestem | Blue grama | 40 | Galleta |
| 2 | Sideoats grama | Hairy grama | 5 | Ring muhly |
| 2 | Black grama | Buffalo grass | 5 | Sand sage |
| 5 | Needle and thread | Sand muhly | T | Prickly pear |
| 5 | New Mexico feathergrass | Sand dropseed | 5 | Mesquite |
| | | Three-awns | 5 | Cholla cactus |
| | | Little soapweed | 5 | Snakeweed |

Maximum total percent 60

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 30 | 20 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 1,600 | | | |
| Unfavorable Years | 800 | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--High Plains (HP-3)

TG Section II-E

RANGE SITE - No. 12

1. RANGE SITE NAME: Sandy Upland (HP-3)

2. CLIMATE:

- a. Annual precipitation for this area ranges from approximately 14 to 18 inches. Approximately 70 percent of this amount falls during April to October inclusive. July, August, and September are the months of highest rainfall. Summer rainfall is characterized by torrential thundershowers of high intensity and short duration that produce high runoff from unprotected soils. There are wide fluctuations in the amount of precipitation from year to year and periodic droughts have occurred some lasting for 4 years or longer. Winter moisture may occur as either rain or snow and usually averages less than 1/2 inch per month. When snow occurs it melts quickly and snow cover persisting as long as one week is unusual.
- b. Wind velocities in this area are high. The spring months are characterized by frequent wind storms with velocities in excess of 45 miles per hour causing severe wind erosion on soils unprotected by adequate vegetation. Humidity is low and evaporation is high, averaging from 75 inches to in excess of 100 inches.
- c. The frost-free season of this sub-area ranges from about 185 days in the north to 215 days in the south. Nocturnal temperatures and length of season are adequate for the growth of cotton where edaphic conditions are favorable and irrigation water is available. Principal grasses of this area are warm season species. The principal growing season is during the late summer and early fall, depending on the availability of moisture. Winters are characteristically warm and open, with occasional "northers" dropping the temperature to 0°F or lower for short periods of time in about one-third of the years of record. Occasional and infrequent temperatures as low as -25°F have occurred. Summers are hot with temperatures of over 100°F occurring frequently from May through September. The amount of sunshine is high, averaging in excess of 80 percent of the possible amount in most years.

3. TOPOGRAPHY AND ELEVATIONS:

This site consists of nearly level to gently sloping areas of Plains Upland. Elevation ranges from approximately 3,400 feet to 4,800 feet.

RANGE SITE - No. 12

4. SOILS:

a. The soils of this site have fine sandy loam surface textures with medium textured subsoils. They range in depth from medium to deep. These soils have moderately rapid water intake rates at the surface with good water-holding capacity in the subsoils. They are subject to moderate to severe wind erosion when not protected by adequate vegetative cover.

b. Significant soil series of this site are:

| | |
|-----------------------------------|-----------------------------------|
| Arvana fine sandy loam | Mansker fine sandy loam |
| Amarillo fine sandy loam | Portales fine sandy loam |
| Berthoud fine sandy loam | * Simona fine sandy loam |
| Berthoud gravelly fine sandy loam | * Simona gravelly fine sandy loam |
| Clovis fine sandy loam | Zita fine sandy loam |
| Kimbrough loamy fine sand | |

c. Complete descriptions for the soils of this site may be found in the descriptive legend for Standard Soil Surveys of Curry, Lea, and Roosevelt Counties and the southwest Quay area.

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|-------------------------|-------------------|-----------------|
| Black grama | Blue grama | Sand sage |
| Little bluestem | Hairy grama | Shin oak |
| Sideoats grama | Buffalo grass | Mesquite |
| Bush muhly | Cane bluestem | Snake weed |
| New Mexico feathergrass | Three-awns | Sand bur |
| Arizona cottontop | Sand muhly | |
| | Yucca | |
| | Cat claw | |
| | Spike pappusgrass | |

b. The decreasing species should make up 50 percent or more of the total vegetation. There may be up to 10 percent of woody species in excellent condition.

c. Yields: Total herbage air dry material 1,000 to 1,400 pounds per acre.

* Tentative Series.

TG Section II-E

RANGE SITE - No. 12

5. POTENTIAL VEGETATION: (continued)

d. Basal herbage covers from 25 percent to 35 percent of the ground.

6. SPECIFIC TYPE LOCATION:

S. 11, R 33E, T 2N, near St. Vrain, New Mexico.

RANGE CONDITION GUIDE

#12

Range Site Name Sandy Upland (HP-3)

| Rating | Decreasers | Increasers | Max. % By Wt. | Invaders |
|--------|-------------------------|---------------------------------------|------------------------|-------------------|
| | (Count all percent) | (Count no more than percent shown) | | (Count None) |
| 1 | Black grama | Blue grama | 30 | Sand sage |
| 3 | Little bluestem | Hairy grama | 5 | Havard's shin oak |
| 3 | Sideoats grama | Buffalo grass | 5 | Mesquite |
| 4 | Bush muhly | Cane bluestem | 5 | Snakeweed |
| 5 | New Mexico feathergrass | Three-awns | 5 | Sandbur |
| 5 | Arizona cottontop | Sand muhly | 5 | Ring grass |
| | | Little soapweed | 5 | Tobosa |
| | | Catclaw mimosa | 5 | Burro grass |
| | | Spike pappusgrass | 5 | |

Maximum total percent 55

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 25 | 25 | 15 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 1,400 | X | X | X |
| Unfavorable Years | 700 | X | X | X |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Central Plains and Valleys (CP-3)

TG Section II-E

RANGE SITE - No. 13

1. RANGE SITE NAME: Sandy Upland (CP-3)

2. CLIMATE:

- a. Summer rains occurring during July, August, and September produce the bulk of the range forage produced on this site. During this period approximately _____ percent of the total average annual precipitation is received. Average annual precipitation is approximately 14 inches but may range from extremes of approximately 5 to 23 inches. These extremes are usually reflected in great variability in range forage production. Although the growing period for the site lasts from the first of April up into the month of November, the greatest surge of growth is during the hot months of summer when blue grama enjoys ideal growing conditions. Summer rains are usually in the form of torrential downpours and these are quite local but frequent. Winter precipitation is received in the form of snow or rain, the storms being more general in nature. Snow pack may build up during cold periods and remain on the ground for several weeks, necessitating emergency feeding of all classes of livestock.
- b. Spring winds, occurring any time from February through June, may be very damaging to this site particularly when the cover is light or broken. The reseeding of this site, when in poor condition, is difficult due to shifting surface soil.
- c. Winter temperatures drop to as low as -30°F during some extremely cold periods. Summer temperatures frequently reach into the high nineties and may attain 105°F as an extreme.

3. TOPOGRAPHY AND ELEVATIONS:

Topography is ordinarily flat to gently undulating although slopes may range up to 10 percent. Elevational range is from 6,000 to 7,000 feet.

4. SOILS:

- a. Soils are sandy on the surface, shallow to moderately deep with rapid permeability and low water holding capacity. Fine sandy loams, sandy loams, and loamy fine sands are included within this site.

4. SOILS: (continued)

b. The following are found:

SERIES, TYPES, AND PHASES

- * Dean fine sandy loam
- * Harvey fine sandy loam
- * Quivira loamy fine sand
- * Quivira loamy fine sand (cemented subsoil variant)
- * Willard fine sandy loam
- Willard loamy fine sand
- Willard loamy fine sand (hummocky)
- Encino fine sandy loam
- . Gomez fine sandy loam
- Harvey fine sandy loam
- Ildefonso loamy fine sand
- Mountainair loamy fine sand
- Otero fine sandy loam
- Otero fine sandy loam (non-calcareous surface)
- Palma fine sandy loam

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Indian ricegrass
Black grama
Sidecoats grama
Little bluestem
Indian grass
Big bluestem
Hall's bluestem
Sand bluestem
Needle & thread grass
New Mexico feathergrass
Porter's muhly
Chamise
Squawbush

Increasers

Blue grama
Hairy grama
Sand dropseed
Mesa dropseed
Spike dropseed
Galleta
Three-awn
Ring muhly
Tumble lovegrass
Purple lovegrass
Yucca
Snakeweed
Butte-weed
Oakbrush

Invaders

Cholla
Sandhill muhly
Prickly pear
Rabbitbrush

* Tentative series.

RANGE SITE - No. 13

5. POTENTIAL VEGETATION: (continued)

- b. This site, in top condition, produces a mixture of tall, mid, and short grasses. At its lower elevation range nearly pure stands of black grama may occur. Important decreaser species present are sand bluestem, Porter's muhly, little bluestem, Indian grass, Indian ricegrass, black grama, sideoats grama, needle and thread grass, New Mexico feathergrass, sand bluestem, and squirreltail. Combinations of these species make up about 40 percent of the total composition. Blue grama, as an increaser, should not be present in excess of 60 percent of the total plant composition. Other increasers or invaders that occur in lesser amounts include sand, mesa, and spike dropseed, tumble lovegrass, purple lovegrass, squawbush, three-awns, ring muhly, yucca, sand sage, galleta, spiny muhly, bigelow sage, cholla, prickly pear, snakeweed, butterweed, and various annual grasses and forbs. Oak brush, pinon and juniper may readily invade this site.
- c. Forage production varies from _____ pounds per acre to _____ pounds per acre during favorable years for range forage growth.
- d. Forage density is approximately 35 percent.

6. SPECIFIC TYPE LOCATION:

4 miles southeast of Cedarvale on road to Corona.

RANGE CONDITION GUIDE

#13

Range Site Name Sandy Upland (CP-3)

| Rating | Decreasers | Increasers | Max. % By Wt. | Invaders |
|--------|-------------------------|---------------------------------------|------------------------|----------------|
| | Count all percent) | (Count no more than percent shown) | | (Count None) |
| 2 | Indian ricegrass | Blue grama) | 60 | Cholla |
| 3 | Black grama | Hairy grama) | | Sandhill muhly |
| 2 | Sideoats grama | Sand dropseed) | | Prickly pear |
| 3 | Little bluestem | Mesa dropseed) | 15 | Rabbitbrush |
| 3 | Indian grass | Spike dropseed) | | |
| 3 | Big bluestem | Galleta | 5 | |
| 3 | Sand bluestem | Three-awn | 5 | |
| 3 | Needle and thread | Ring muhly | T | |
| 2 | New Mexico feathergrass | Tumble lovegrass | 5 | |
| 3 | Bush muhly | Purple lovegrass | 5 | |
| 4 | Chamiza | Yucca | T | |
| 4 | Skunkbush sumac | Snakeweed | T | |
| | | Butterweed | T | |
| | | Oakbrush | T | |

Maximum total percent 65

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 35 | 30 | 15 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Northern Desert Valleys and Mesas (ND)
Western Plateaus and Mesas (WP-1, WP-2)

TG Section II E

RANGE SITE - No. 14

1. RANGE SITE NAME: Sandy Upland (WP-1, WP-2, ND)

2. CLIMATE:

- a. The average annual rainfall in the Northern Desert Land Resource Area is 10 to 12 inches. Some recordings are as low as 6.76 inches annually in the San Juan Valley. Approximately one-third of these amounts falls in the form of winter snow from December through March. Intense summer thunder showers are common throughout the site during July, August, and September when average amounts for this season equal 3 to 4 inches. The frost-free period of the year is ordinarily late spring (May-June) and fall (Oct.-Nov.).
- b. Spring winds contribute to dry conditions.
- c. The principal growing season on this site is during the summer months when precipitation amounts and temperatures are most favorable for Gramas. At the elevations above 6,500 feet, cool season growers make a considerable production during March and April; and after a dormant summer season, will make some growth in the fall (Oct.-Nov.). Frost-free periods range from about 140 days in the higher portion of the site to 163 days in the lower portion. These periods extend from May 9 and May 22 to October 8 and October 18.

3. TOPOGRAPHY AND ELEVATION:

- a. The site occurs in the Northern Desert and Western Plateaus Resource Areas with a dominant slope less than 10 percent. The site is common in a belt traversing sand stone capped mesas or outcrops. The site may have deposits in dunes not exceeding 4 feet in height. Rapid intake of water reduces gullies, although gullying is quite often present in various stages of erosion.
- b. Elevation ranges from 5,600 to 7,000 feet.

4. SOILS:

- a. Soils of this site usually have a deep profile although they may occur in sedimentary deposits from a wide variety of parent materials. The soils are subject to wind erosion and will develop into sand dunes when barren of vegetative cover. The soil texture is sandy loam, loamy sand, and sand. Permeability is moderately rapid to rapid. Caution must be exercised not to denude the site of vegetation as the site is highly unstable without vegetation and will drift into dunes. The site will support a good dense vegetative cover under proper management.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Poleo sandy loam
*Chambley sandy loam
*Flake sandy loam

*Tentative series

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Blue grama
Indian ricegrass
Galleta
Alkali sacaton
Bluestem (western) wheatgrass
Needleandthreadgrass

Increasesers

Poverty threeawn
Ring muhly
Sleepygrass
Sand dropseed
Big sagebrush
Sand sagebrush
Common winterfat
Chamiza
Broom snakeweed
Annuals
Pinon
Juniper
Sandhill muhly
Longleaf Ephedra

Invaders

Pingue
Loco
Lupine

TG Section II E
RANGE SITE - No. 14

- b. The decreasers make up 65 percent of the vegetation and the remainder is increasers. There may be 10 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 30 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#14

Range Site Name Sandy Upland (ND) (WP-1) (WP-2)

| Rating | Decreasers (Count all %) | Increasers (Count no more than % shown) | Max. % By Wt. | Invaders (Count none) |
|--------|----------------------------------|-----------------------------------------------|------------------------|--------------------------|
| 1 | Blue grama | Poverty threeawn | 10 | Pingue |
| 3 | Indian ricegrass | Ring muhly | 5 | Loco |
| 2 | Galleta | Sleepygrass | T | Lupine |
| 1 | Bluestem (western) wheatgrass | Sand dropseed | 15 | |
| | | Big sagebrush | 20 | |
| 5 | Needleandthreadgrass | Sand sagebrush | 5 | |
| 5 | Alkali sacaton | Chamiza | T | |
| | | Broom snakeweed | T | |
| | | Annuals | 10 | |
| | | Pinon | 5 | |
| | | Juniper | 5 | |
| | | Common winterfat | 5 | |
| | | Sandhill muhly | 5 | |
| | | Longleaf Ephedra | 5 | |

| | |
|-----------------------|----|
| Maximum total percent | 25 |
|-----------------------|----|

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 20 | 10 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-1)

TG Section II-E

RANGE SITE - No. 16

1. RANGE SITE NAME: Sandy Upland (SD-1)

2. CLIMATE:

- a. Although some of the cool season growers produce some spring feed, the dominant forage is produced with summer rains during July, August, and September. Average annual precipitation amounts to about 8.5 inches, most of which falls during the growing season. Winter moisture is extremely variable. Occasional winter storms of some severity occur, and snow up to amounts of 6 to 8 inches may remain on the ground for several days. Temperatures may range from -10°F in the winter or early spring to around 100°F during June, July, and August. Rainfall amounts are extremely variable and widely scattered. Some storms of a general nature may be enjoyed during the spring or fall months.
- b. Spring winds are a deterrent to plant growth on this site. Early spring moisture is rapidly lost to plant use and where vegetative cover is thin or light, hummocking is likely to occur. Unless bare areas are adequately protected by a surrounding grass, weed, or shrub border, the hummocks may develop into dunes.
- c. Growing season is about 198 days - from mid April to the last of October.

3. TOPOGRAPHY AND ELEVATIONS:

This site occupies relatively smooth topography but slopes may extend up to 25 percent. In some localities it occurs as relatively narrow ridges, tapering out into broader rolling plains or slopes. The site may be formed by the moving of surface sands from the deep sand site over onto other upland sites. Elevational range is from 4,900 feet to 6,000 feet.

4. SOILS:

- a. Soils of this site are moderately deep to deep with sandy surface textures and finer textured subsoils. Water intake rates are high but storage is low. The subsoils have capacities to retain large amounts of moisture but are ordinarily quite dry.
- b. The following are included:

SERIES, TYPES, AND PHASES

Tijeras fine sandy loam
Madera loamy fine sand

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|--------------------------|-------------------|-----------------|
| New Mexico feathergrass | Galleta | Burro grass |
| Blue grama | Ring grass | Mesquite |
| Black grama | Three-awn | Desert willow |
| Indian ricegrass | Fluffgrass | |
| Bottlebrush squirreltail | Spiny muhly | |
| Little bluestem | Butterweed | |
| Cane beardgrass | Yucca | |
| Plains bristlegrass | Snakeweed | |
| Winterfat | Sand muhly | |
| Chamise ^{aka} | Mormon tea | |
| Giant dropseed | Sand dropseed | |
| Porter's muhly | Mesa dropseed | |
| | Spike dropseed | |
| | Smokebush | |
| | Sand sage | |

b. Top vegetative condition is indicated when a mixture of blue grama, black grama, sand and mesa dropseed, New Mexico feathergrass, Porter's muhly, Indian ricegrass, and bottlebrush squirreltail make up at least 65 percent of the vegetative cover, and this cover is evenly spaced with a density of 30 percent. Only a few shrubs are present including yucca, Mormon tea, smoke bush, sand sage, and rabbitbrush. Increasers present in small amounts include fluff grass, three-awns, ring muhly, sand muhly, snakeweed, and prickly pear. Occasional scrub pinon-juniper may be present on this site but it is climatically unsuited to tree species. Some invasion by mesquite may occur.

c. Total herbage yield varies from _____ pounds per acre to _____ pounds per acre on this site.

d. Density in top condition is 30 to 35 percent.

6. SPECIFIC TYPE LOCATION:

Belen Mesa - sandy surface.

E. pasture of La Joa Grant - south of Highway 60.

West Mesa - west of Albuquerque.

La Majada Grant - northeast of Santo Domingo.

RANGE CONDITION GUIDE

#16

Range Site Name Sandy Upland (SD-1)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|--------------------------|---------------------------------------|-----------|---------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 2 | New Mexico feathergrass | Galleta | 15 | |
| 2 | Blue grama | Ring muhly | T | Burro grass |
| 2 | Black grama | Three-awns | T | Mesquite |
| 1 | Indian ricegrass | Fluffgrass | T | Desert Willow |
| 5 | Bottlebrush squirreltail | Sandhill muhly | T | |
| 5 | Little bluestem | Smokebush | 5 | |
| 4 | Cane beardgrass | Butterweed | T | |
| 2 | Plains bristlegrass | Yucca | 5 | |
| 3 | Winterfat | Sand sagebrush | 5 | |
| 3 | Chamiza | Snakeweed | T | |
| 4 | Giant dropseed | Sand muhly | T | |
| 3 | Bush muhly | Mormon tea | 5 | |
| | | Sand dropseed) | | |
| | | Mesa dropseed) | 20 | |
| | | Spike dropseed) | | |

Maximum total percent 35

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 25 | 15 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-2)

TG Section II-E

RANGE SITE - No. 17

1. RANGE SITE NAME: Sandy Upland (SD-2)

2. CLIMATE:

- a. Precipitation averages from 8 to 12 inches and ranges from an all time low of 2.9 inches to a record high of 25.7 inches. The greater part occurs during the months of July, August, and September. There are extreme fluctuations from year to year, with periodic droughts. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages less than half an inch per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. These high winds in March, April, and May cause extensive erosion on unprotected soils. High temperatures, fairly constant winds, and low humidity cause the average annual evaporation to range up to 107 inches, from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during July, August, and September. The growing season of the native warm season plants begins after the last frost, ~~March 29 to April 23~~, and continues as moisture is available until October 15 to November 12, which are the average dates ending the frost free period. Winters are generally mild; however, there is a recorded low of -10°F. The maximum summer temperature on record is 110°F. Average annual temperatures range from 58°F to 60°F.

3. TOPOGRAPHY AND ELEVATIONS:

The dominant slope for this site is from 1 to 3 percent. Slopes may be undulating, broken by arroyos and dry lake beds, and occasionally broken by the presence of Stony Hills site. The elevation is between 4,000 and 5,500 feet above sea level.

4. SOILS:

- a. The soils of this range site are deep to moderately deep alluvial soils developing in mixed parent materials. The moderately coarse textured surface horizons overly medium to moderately fine textured subsoils that are mostly moderately permeable. Lime zones are generally encountered at depths of 20 to 40 inches. The water storage potential is good. The soils are susceptible to wind erosion and severe erosion may occur when not adequately protected with plant cover.
- b. Significant soils in this site may include one or more of the following soils:

SERIES, TYPES, AND PHASES

Mohave sandy loam
Frye sandy loam
Vekol sandy loam
Gilman sandy loam
Karro sandy loam
Tucson sandy loams
Adelanto (like) sandy loams

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legend, or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Black grama
Bush muhly
Sideoats grama
Arizona cottontop
Plains bristlegrass
Indian ricegrass
Cane bluestem
Blue grama
Rothrock grama
Giant dropseed
New Mexico feathergrass
Common winterfat

Increasers

Threesawns
Tobosa
Sand muhly
Hall panic
Bottlebrush squirreltail
Sand sagebrush
Wright Eriogonum
Longleaf Ephedra
Catclaw
Wolfberry
Broom snakeweed
Soaptree yucca
Cactus

Invaders

Mesquite
Lehman lovegrass
Burroweed
Fluffgrass

RANGE SITE - No. 17

5. POTENTIAL VEGETATION: (continued)

Decreasers

Increasers

Invaders

Condalia
Senna
Rocky Mountain zinnia
Loco
False garlic

- b. The decreaseers make up 65 percent of the vegetation and the remainder may be increasers. There may be 10 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is 450 to 800 pounds per acre. *
- d. Herbage covers 15 to 20 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

8 miles west of Hatch on Deming Highway.
8 miles north of Lordsburg in Sec. 22, T 21S, R 18W.

* Based on limited plot clippings and estimates.

RANGE CONDITION GUIDE

#17

Range Site Name Sandy Upland (SD-2)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|-------------------------|---------------------------------------|-----------|------------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Black grama | Tobosa | 15 | Mesquite |
| 2 | Bush muhly | Threeawns | 15 | Lehman lovegrass |
| 2 | Sideoats grama | Sand sagebrush | 5 | Burroweed |
| 4 | Arizona cottontop | Wright Eriogonum | 5 | Fluffgrass |
| 4 | Blue grama | Bottlebrush squirreltail | T | |
| 5 | Plains bristlegrass | Hall's panicum | T | |
| 5 | Vine-Mesquite | Sand Muhly | T | |
| 5 | Indian ricegrass | Rocky Mountain zinnia | T | |
| 5 | Cane bluestem | Condalia (Co Spp) | T | |
| 5 | Rothrock grama | Falsegarlic (No Spp) | T | |
| 5 | New Mexico feathergrass | Cactus | T | |
| 5 | Common winterfat | Loco | T | |
| | | Broom snakeweed | T | |
| | | Soaptree yucca | T | |
| | | Wolfberry | T | |
| | | Catclaw | T | |
| | | Longleaf Ephedra | T | |

Maximum total percent 35

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 15 | 10 | 5 | Any |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 900 | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-3)

TG Section II-E

RANGE SITE - No. 18

1. RANGE SITE NAME: Sandy Upland (SD-3)

2. CLIMATE:

- a. Arid to semi-arid climate with an annual precipitation for this resource area averaging from 11 to 15 inches. The wettest year on record was at Ft. Sumner (41.37 inches) and the driest year was at Carlsbad (2.95 inches). Approximately 75 percent of the annual rainfall occurs from May to October inclusive. June, July, August, and September are normally the months of highest rainfall. Summer rainfall is characterized by torrential thunder-showers of high intensity and short duration that produce high runoff from unprotected soils. There are extreme fluctuations in the amount of precipitation from year to year, and periodic droughts have occurred, some lasting for 4 years or longer. More years of below average rainfall can be expected than those above the average precipitation. Winter moisture may occur in the form of rain and/or snow and usually averages less than half an inch per month. When snow occurs it melts quickly and snow cover persisting as long as one week is unusual.
- b. Wind velocities in this area are high. February, March, April, and May are characterized by frequent wind storms with velocities in excess of 50 miles per hour, causing severe wind erosion on soils unprotected by adequate vegetation. Humidity is low and evaporation is high, averaging from 70 to 85 inches to in excess of 120 inches (from an evaporation pan).
- c. The frost free season of this sub-area ranges from about 187 days at Ft. Sumner in the northern part to 228 days at Carlsbad Caverns in the southern part. The growing season of the native warm season plants begins after the last frost, April 2 to 19 (South to North) and continues as moisture is available until the latter part of October or the first of November ending the frost free period. Winters are characteristically warm and open, with occasional "northers" dropping the temperature to 0°F or lower for short periods of time in about 1/3 of the years on record. Occasional and infrequent temperatures as low as -30°F have occurred. Summers are hot with temperatures of over 105°F occurring frequently from May through September. The annual average temperature varies from 59°F at Roswell to 63°F at Carlsbad.

RANGE SITE - No. 18

3. TOPOGRAPHY AND ELEVATIONS:

The topography is level to gently undulating. It is frequently broken by narrow bottomland sites, dry lake beds, and may be intermixed with Loamy Upland or Shallow Upland, or Loamy Bottomland sites. The dominant slopes for this site range from 1 to 3 percent. Elevation ranges from 3,100 feet around Jal and Carlsbad areas to 4,200 feet around the Ft. Sumner area. Areas around Lulu, Cornudas Mountains, and small isolated places in the resource area may be up to 5,000 feet in elevation.

4. SOILS:

- a. The soils on this site are mostly sandy loam and fine sandy loam over 10 inches deep. Water intake rates are high and moisture holding capacity is low to medium. Soil and moisture relationships are good. These soils may be calcareous to the surface. If unprotected by plant cover the soils are highly susceptible to wind erosion and water erosion from intense storms.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Harkey sandy loam
Zita sandy loam
Reagan fine sandy loam
Berthoud sandy loam
Clovis sandy loam
Quay sandy loam
Portales fine sandy loam
Portales loamy fine sand
Mansker fine sandy loam
Mansker loamy fine sand
Zita fine sandy loam
Clovis fine sandy loam
Lea fine sandy loam

- c. Complete Soil Series Descriptions are available in the Soil Survey Descriptive Legends or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Black grama
Little bluestem
Bush muhly
Blue grama
Sideoats grama
Plains bristlegrass
Bottlebrush squirreltail
Vine-mesquite
Sand bluestem

Increasers

Sand muhly
Sand dropseed
Three-awns
Tobosa
Silver bluestem
Ring muhly
Goldenweed
Groundsel
Mentzelia
Little soapweed
Desert senna
Rocky Mountain zinnia
Tumble grass
Loco
Sand sagebrush
Skunkbush sumac
Prickly pear
Queen delight
Red lovegrass

Invaders

Fluffgrass
Croton
Sandbur
Wright eriogonum
Mesquite
Broom snakeweed
Wavyleaf thistle
Havard oak
Annuals

The decreaseers make up 70 percent of the vegetation and the remainder is increasers.

b. The potential species for this site are black grama, little bluestem, bush muhly, blue grama, and sideoats grama. Vine-mesquite, dropseed spp, three-awn spp, fluffgrass, ring muhly, and sand muhly, make up 20 percent of the cover. Yucca and skunkbush sumac are the main browse species and may make up 5 percent. Common forbs such as desert senna, loco, and croton may make up 5 percent.

c. Annual herbage yields based on plot clippings and weights vary from 1,800 pounds per acre in favorable years to 600 pounds per acre in less favorable years when the site is in excellent condition. *

d. Basal herbage covers 30 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

NE 1/4 of Sec. 8, T 8S, R 27E, in Chaves County.
Center of Sec. 2, T 8S, R 27E, in Chaves County.

*Based on limited clipping data and estimates.

RANGE CONDITION GUIDE

#18

Range Site Name Sandy Upland (SD-3)

| Rating | Decreasers | Increasers | Max. % By Wt. | Invaders |
|--------|--------------------------|---------------------------------------|------------------------|-------------------|
| | (Count all percent) | (Count no more than percent shown) | | (Count None) |
| 1 | Black grama | Sand muhly | 5 | Fluffgrass |
| 1 | Blue grama | Sand dropseed | 10 | Croton |
| 3 | Sideoats grama | Threeawns | 10 | Sandbur |
| 3 | Bush muhly | Tobosa | 5 | Wright eriogonum |
| 4 | Little bluestem | Silver bluestem | 5 | Mesquite |
| 4 | Plains bristlegrass | Little soapweed | 5 | Broom snakeweed |
| 4 | Sand bluestem | Ring muhly | T | Wavy leaf thistle |
| 4 | Vine-mesquite | Goldenweed | T | Havard oak |
| 5 | Bottlebrush squirreltail | Groundsel | T | Annuals |
| | | Mentzelia | T | |
| | | Desert senna | T | |
| | | Rocky mountain zinnia | T | |
| | | Tumblegrass | T | |
| | | Queen delight | T | |
| | | Loco | T | |
| | | Sand sagebrush | T | |
| | | Skunkbush sumac | T | |
| | | Prickly pear | T | |
| | | Red lovegrass | T | |

Maximum total percent 30

| Percent by Weight of Potential Vegetation | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Minimum Percent Density | 76-100 | 51-75 | 50-26 | 0-25 |
| | 30 | 25 | 20 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 1,800 | | | |
| Unfavorable Years | 600 | | | XX |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Central Plains and Valleys (CP-2, CP-3)

TG Section II-E

RANGE SITE - No. 19

1. RANGE SITE NAME: Shallow Sand (CP-2, CP-3)

2. CLIMATE:

- a. Annual average precipitation for this area averages from approximately 14 to 17 inches. About three-quarters of this amount falls during the period April to October inclusive, with July and August usually recording the highest monthly averages. Spring and summer rainfall is characterized by torrential thundershowers of high intensity and short duration that produce high runoff from unprotected soils. There are extreme fluctuations in the amount of rainfall from year to year, and periodic droughts, lasting from 3 to 4 years, have occurred. Annual rainfall in the area has ranged from a high of 40 inches to as low as 6.15 inches. Winter moisture may occur as either rain or snow and usually averages less than 1/2 inch per month.
- b. Wind velocities in this area are high and average about 5.3 miles per hour on an annual basis. The spring months are characterized by frequent wind storms with velocities in excess of 45 miles per hour which cause excessive erosion on soils not protected by a good cover of vegetation. Humidity is low and evaporation is high, usually averaging 75 inches during the period April to October inclusive.
- c. The principal growing season of native vegetation occurs during the period May through September inclusive. The frost-free season averages 188 days, from April 17 to October 22. Summers are hot with maximum temperatures frequently reaching 100°F or more from late May to early September. Winters are characterized by warm, sunny days and cold nights, with occasional "northers" that may keep temperatures below freezing for several days. Temperatures of 0°F or lower have occurred in about half of the years of record with -18°F the lowest temperature of record in the area. The percentage of sunshine is high, averaging 80 percent or more of the possible amount in most years.

3. TOPOGRAPHY AND ELEVATIONS:

This site is nearly level to undulating in topography with some slopes ranging up to 10 percent. It occurs at elevations ranging from approximately 4,400 feet to 6,600 feet.

RANGE SITE - No. 19

4. SOILS:

- a. The soils of this site consist of sandy loams and loamy sand that are shallow to very shallow in depth, usually less than 10 inches occurring over hard caliche, sandstone, or limestone.
- b. Significant soil series of this site have not yet been included in Standard Soil Surveys (De Baca, Guadalupe, Lincoln, and San Miguel Counties). Under utilitarian surveys they have been mapped as -

Chupadera loamy fine sand
Potter loamy fine sand
Potter fine sandy loam

- c. Complete soil series descriptions may be found in the descriptive legend in State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|-------------------------|-------------------|-----------------|
| Little bluestem | Blue grama | Annuals |
| Sideoats grama | Hairy grama | Western ragweed |
| Black grama | Sand muhly | Mesquite |
| New Mexico feathergrass | Three-awns | Juniper |
| Sand bluestem | Sand dropseed | Snake weed |

- b. This site supports a mixture of mid and short grasses, with yucca and squaw bush the most common woody species. It may contain some one seeded juniper at the higher elevations.
- c. 50 percent or more of the climax vegetation is made up of decreasing species. Up to 10 percent of woody species may be included in the climax vegetation for the site.
- d. Annual herbage yield of this site, based on limited plot clippings, is 1,400 to 1,600 pounds of air dry material per acre.
- e. Ground cover of vegetation ranges from 25 percent to 30 percent.

6. SPECIFIC TYPE LOCATION:

Near Pastura, Guadalupe County, along Highway 60 west of Yeso, De Baca County.

RANGE CONDITION GUIDE

#19

Range Site Name Shallow Sand (CP-2, CP-3)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|-------------------------|------------------------------------|-----------|--------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 2 | Little bluestem | Blue grama | 40 | Ring grass |
| 2 | Sideoats grama | Hairy grama | 10 | Ragweed |
| 2 | Black grama | Sand dropseed | 5 | Mesquite |
| 4 | New Mexico feathergrass | Three-awns | 5 | Juniper |
| 5 | Sand bluestem | Sand muhly | T | Annuals |
| | | Little soapweed | 5 | |
| | | Skunkbush sumac | 5 | |
| | | Catclaw acacia | T | |
| | | Snakeweed | T | |
| | | Bladder pod | T | |

Maximum total percent 55

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 25 | 25 | 15 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 1,400 | | | X |
| Unfavorable Years | 700 | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Northern Desert Valleys and Mesas (ND)
Western Plateaus and Mesas (WP-1, WP-2)

TG Section II E

RANGE SITE - No. 20

1. RANGE SITE NAME: Shallow Sand (ND, WP-1, WP-2)

2. CLIMATE:

- a. The average annual rainfall in the Northern Desert and Western Plateau Land Resource Area is 10 to 12 inches. Some recordings are as low as 6.76 inches annually in the San Juan Valley. Approximately one-third of these amounts fall in the form of winter snow from December through March. Intense summer thunder showers are common throughout the site during July, August, and September, when average amounts for this season equal 3 to 4 inches. The frost-free period of the year is ordinarily late spring (May-June) and fall (Oct.-Nov.).
- b. Spring winds contribute to dry conditions.
- c. The principal growing season on this site is during the summer months when precipitation and temperatures are optimum for grammas. At the elevations above 6,500 feet, cool season growers make a considerable production during March and April and, after a dormant summer season, will make some growth in the fall (Oct.-Nov.). Frost-free periods range from about 140 days in the higher portion of the site to 163 days in the western portion. These periods extend from May 8 and May 22 to October 9 and October 18.

3. TOPOGRAPHY AND ELEVATION:

- a. The dominant slope of the land is less than 10 percent. The sand deposits will vary throughout the site from three or four inches up to a maximum depth of 10 inches. The sand deposits may be over a number of parent materials. Parent material outcrops may occur intermittently throughout the site on thin sand covered areas of 3 to 6 inches. The topography may give a broken effect or the surface may have a uniform grade.
- b. Elevation ranges from 5,500 feet to 7,500 feet.

4. SOILS:

- a. The soils of this site are moderately coarse to coarse-textured mostly shallow soils over sandstone, limestone, or gravel. Water holding capacity is low.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Travesilla (like) sandy loam

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Blue grama
Galleta
Indian ricegrass
Bluestem (western) wheat-
grass
Chamiza
Common winterfat
Alkali sacaton
Needleandthreadgrass

Increasers

Sandhill muhly
Sand dropseed
Poverty threeawn
Ring muhly
Fluffgrass
Apache plume
Rubber rabbitbrush
Broom snakeweed
Sand sagebrush
Big sagebrush
Cactus sp.
Small soapweed
Pinon
Juniper

Invaders

Pingue
Loco
Lupine

- b. The decreaseers make up 55 percent of the vegetation and the remainder is increasers. There may be 10 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers from 15 to 25 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#20

Range Site Name Shallow Sand (WP-1) (WP-2) (ND)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|----------------------|------------------------------|----------------|--------------|
| | (Count all %) | (Count no more than % shown) | % By Wt. | (Count none) |
| 1 | Blue grama | Sand dropseed | 10 | Pingue |
| 2 | Galleta | Poverty threeawn | 15 | Lupine |
| 3 | Indian ricegrass | Ring muhly | 5 | Loco |
| 4 | Bluestem (western) | Fluffgrass | T | |
| | wheatgrass | Apacheplume | T | |
| 5 | Chamiza | Sand sagebrush | T | |
| 5 | Needleandthreadgrass | Big sagebrush | T | |
| 5 | Common winterfat | Cactus spp. | T | |
| 5 | Alkali sacaton | Pinon | 5 | |
| | | Juniper | 5 | |
| | | Sandhill muhly | 5 | |
| | | Rubber rabbitbrush | 5 | |
| | | Broom snakeweed | T | |
| | | Small soapweed | T | |

Maximum total percent 35

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 25 | 15 | 10 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-1)

TG Section II-E

RANGE SITE - No. 21

1. RANGE SITE NAME: Shallow Sand (SD-1)

2. CLIMATE:

- a. Climate of this site is semi-arid. Annual precipitation, where this site occurs, varies from 8.5 inches to 9.7 inches most of which is received during the main growing period of July, August, and September. A record low average annual precipitation of 2.15 inches was received in 1891. Seasonal distribution of precipitation is approximately as follows:

| | | | |
|--------|---|----|---------|
| Spring | - | 20 | percent |
| Summer | - | 40 | " |
| Fall | - | 27 | " |
| Winter | - | 13 | " |

Greatest amounts usually occur as torrential summer thundershowers and 2 and 3 inch rains, lasting only an hour, are not uncommon. When such storms occur over the same area, amounts ranging up to 5 inches in the month may be recorded. Ordinarily, winter storms are not severe. Some snow is usually received in late winter or early spring and may remain on the ground from a few hours to 2 to 3 weeks. Depth does not usually exceed 6 inches.

- b. Temperatures range from a maximum of around 100°F in the summer to -5° to -10° in the winter. Such extremes are for but brief periods. Hot and dry weather conditions during the month of June are frequently responsible for the failure of revegetation efforts on rangeland. During droughty summers, range plants may be barely capable of surviving and little, if any, growth is made. Severe droughts cause a definite thinning out of range plants and the site may be damaged by wind erosion either during the same year or the following spring.

Sandy surface textured soil is subject to continual shifting by wind action unless the vegetative cover is maintained in high condition. Spring winds, occurring between January and June may reach peak velocities up to 60 miles per hour. These storms are apt to alter the surface of this site to a great extent. Survival of seedling grasses is drastically reduced under these conditions.

3. TOPOGRAPHY AND ELEVATIONS:

Usually level to undulating mesa tops. Near breaks of drainageways this site becomes moderately steep and may also be "choppy" in appearance. Elevational range is from 5,000 to 6,000 feet.

4. SOILS:

- a. Soils are moderately to coarse textured, very shallow to shallow, over caliche or rock. Water intake rates are high but storage capacity is low.
- b. The following are included:

SERIES, TYPES, AND PHASES

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Black grama
Hairy grama
Blue grama
Indian ricegrass
Sideoats grama
Giant dropseed
Porter's muhly
Needle & thread grass
New Mexico feathergrass
Chamise
Winterfat
Little bluestem
Texas timothy

Increasers

Ring muhly
Three-awn
Fluffgrass
Sand muhly
Galleta
Spiny muhly
Sand dropseed
Apache plume
Yucca

Invaders

Butterweed
Mesquite
Creosote bush
Cholla
Sand sage
Mormon tea
Snakeweed
Rabbit brush

5. POTENTIAL VEGETATION: (continued)

- b. This site is capable of producing a good variety of palatable perennial grasses with but few scattered shrubs being in evidence. Sideoats grama, little bluestem, Texas timothy, black grama, blue grama, Indian rice-grass, Porter's muhly are dominant, making up at least 75 percent of the vegetative composition. Chamise, winterfat, yucca, and cholla occur in scattered amounts but in the aggregate amount to less than 25 percent of the composition. During years of high winter and early spring moisture, a good crop of perennial and annual weeds is produced.
- c. Forage yields are extremely flexible, depending to some extent on the crop of forbs. Grass yields vary from approximately _____ pounds per acre to _____ pounds per acre for range in high condition.
- d. Ground cover is evenly spaced and completely protects approximately one-third of the surface. Interspaces are adequately insulated by the presence of some litter.

6. SPECIFIC TYPE LOCATION:

Sandy surface soils over Malpais on mesa west of Los Lunas and on Diamond A Ranch, east side of Rio Grande.

RANGE CONDITION GUIDE

#21

Range Site Name Shallow Sand (SD-1)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|-------------------------|---------------------------------------|-----------|----------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Black grama | Ring muhly | T | Butterweed |
| 5 | Hairy grama | Three-awns | 5 | Mesquite |
| 2 | Blue grama | Fluffgrass | T | Creosote bush |
| 3 | Indian ricegrass | Sand muhly | 5 | Cholla |
| 3 | Sideoats grama | Galleta | 20 | Sand sagebrush |
| 3 | Giant dropseed | Sandhill muhly | T | Mormon tea |
| 3 | Bush muhly | Sand dropseed | 20 | Snakeweed |
| 5 | Needle and thread | Apache plume | 5 | Rabbitt brush |
| 4 | New Mexico feathergrass | Yucca | T | |
| 4 | Chamiza | | | |
| 4 | Winterfat | | | |
| 3 | Little bluestem | | | |
| 5 | Texas timothy | | | |

Maximum total percent 25

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 35 | 25 | 15 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-2, SD-3)

TG Section II-E

RANGE SITE - No. 22

1. RANGE SITE NAME: Shallow Sand (SD-2, SD-3)

2. CLIMATE:

- a. Precipitation averages from 8 to 15 inches and ranges from an all time low of 2.1 inches to a record high of 43 inches. The greater part occurs during the months of June, July, August, and September. There are extreme fluctuations from year to year, with periodic droughts. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages less than half an inch per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. These high winds in March, April, and May cause extensive erosion on unprotected soils. High temperatures, fairly constant winds, and low humidity cause the average annual evaporation to range up to 107 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during June, July, August, and September. The growing season of the native warm season plants begins after the last frost, March 29 to April 23, and continues as moisture is available until October 15 to November 15, which are the average dates ending the frost free period. Winters are generally mild; however there is a recorded low of -30°F. The maximum summer temperature on record is 112°F. Average annual temperatures range from 58°F to 63°F.

3. TOPOGRAPHY AND ELEVATIONS:

The topography is generally level to gently rolling. It is frequently broken by narrow bottomland sites, dry lake beds, and may be intermixed with Loamy Upland, Shallow Upland, and Loamy Bottomland sites. The dominant slope for this site is 0 to 3 percent but may go up to 10 percent.

4. SOILS:

- a. The significant soils which characterize this site are sands and loamy sands 10 inches or less in depth. Water intake rates are good but water storage is quite low. The limiting layer is usually caliche or marl. If unprotected by plant cover, the soils are highly susceptible to wind erosion and water erosion from intense storms.
- b. The significant soils in this site may include one or more of the following soils:

SERIES, TYPES, AND PHASES

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legend or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Black grama
Blue grama
Sideoats grama
Bush muhly
Cane bluestem
Plains bristlegrass
New Mexico feathergrass
Wolftail
Vine-mesquite
Arizona cottontop
Little bluestem
Sand bluestem

Increasers

Threeawns
Ring muhly
Sand muhly
Sand dropseed
Mesa dropseed
Scratchgrass
Common winterfat
Wright Eriogonum
Range ratany
Wavyleaf thistle
Threadleaf groundsel
Rocky Mountain zinnia
Deer vetch
Globemallow
Wolfberry
Soaptree yucca
Small soapweed
Skunkbush sumac
Cactus
Broom snakeweed
Mormon tea
Javelina brush

Invaders

Mesquite
Havard Oak (Shinnery)
Fluffgrass
Croton
Creosotebush

5. POTENTIAL VEGETATION: (continued)

- b. The decreasers make up 55 percent of the vegetation and the remainder may be increasers. There may be 10 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is 450 to 750 pounds per acre. *
- d. Herbage covers 15 to 20 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

Shallow sand area near Las Cruces Airport on the west mesa in Dona Ana County.

* Based on limited clippings and estimates.

RANGE CONDITION GUIDE

#22

Range Site Name Shallow Sand (SD-2, SD-3)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|-------------------------|------------------------------------|----------------|----------------------|
| | (Count all percent) | (Count no more than percent shown) | % By Wt. | (Count None) |
| 1 | Black grama | Sand dropseed | 15 | Mesquite |
| 4 | Blue grama | Mesa dropseed | 10 | Havard Oak(shinnery) |
| 2 | Sideoats grama | Signal grass | 5 | Fluffgrass |
| 2 | Bush muhly | Threeawns | 5 | Croton |
| 2 | Cane bluestem | Sand muhly | 5 | Creosote |
| 4 | Plains bristlegrass | Wright Eriogonum | 5 | |
| 4 | New Mexico feathergrass | Common winterfat | 5 | |
| 1 | Little bluestem | Scratchgrass | T | |
| 5 | Wolf tail | Ring muhly | T | |
| 1 | Vine-mesquite | Javelina brush | T | |
| 2 | Arizona cottontop | Longleaf Ephedra | T | |
| | | Broom snakeweed | T | |
| | | Prickley pear & cholla | T | |
| | | Littleleaf sumac | T | |
| | | Scaptree yucca | T | |
| | | Small soapweed | T | |
| | | Range ratany | T | |
| | | Wolfberry | T | |
| | | Senna | T | |
| | | Globemallow | T | |
| | | Deer vetch | T | |
| | | Rocky Mountain zinnia | T | |
| | | Threadleaf groundsel | T | |
| | | Wavyleaf thistle | T | |
| | | Queen's delight | T | |
| | | Loco | T | |

Maximum total percent 45

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 15 | 10 | 5 | Any |

| Approximate Air-Dry Forage Yields per Acre By: | | | | |
|------------------------------------------------|--------------------------------|------|------|------|
| | Range Condition Classification | | | |
| | Excellent | Good | Fair | Poor |
| Favorable Years | 750 | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Northern Desert Valleys and Mesas (ND)

TG Section II E

RANGE SITE - No. 23

1. RANGE SITE NAME: Sand Hummock (ND)

2. CLIMATE:

- a. The average annual rainfall in the Northern Desert Land Resource Area is 10 inches. Some recordings are as low as 6.76 inches annually in the San Juan Valley. Approximately one-third of these amounts falls in the form of winter snow from December through March. Intense summer thunder showers are common throughout the District during July, August, and September when average amounts for this season equal 3 to 4 inches. The frost-free period of the year is ordinarily late spring (May-October).
- b. Spring winds contribute to dry conditions over most of the District.
- c. The principal growing season on this site is during the summer months when precipitation amounts and temperatures are optimum for grama. At the elevations above 6,500 feet, cool season growers make a considerable production during March and April; and after a dormant summer season, will make some growth in the fall (Oct.-Nov.). Frost-free periods range from about 140 days in the higher portion of the district to 163 days in the lower portion. These periods extend from May 8 and May 22 to October 9 and October 18.

3. TOPOGRAPHY AND ELEVATION:

- a. This site occurs within the Northern Desert Land Resource Area on the open, flat to moderately sloping areas. Maximum slope for this site is ten percent.
- b. Elevation varies from 5,000 feet to 7,000 feet. At the lower elevations in the site the salt-tolerant plants begin to become more numerous on the flatter areas. The site includes all exposures. The various exposures will support different amounts of vegetation giving the site a complex effect. The complex site areas, such as north and south slope, will be mapped as one site. The slope may be broken or irregular.

4. SOILS:

- a. Soils of the Sand Hummock Site are very coarse-textured soils that are deposited by wind. These surface soils are usually coarser textured than those of the Deep Sand Site due to the fine sand being blown out. Little to no loam-textured soils will be found in the dune sites. Soil depth may vary greatly over various formations and in some areas the soil will be blown out to caliche or heavy subsoil. Organic matter in the sand dunes is very little to none. Potential soil movement by high winds makes the site very sensitive in maintaining a balanced vegetative cover to stabilize the soil movement. Dunes will be in excess of 4 feet in height.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Preston sand, eroded

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Blue grama
Galleta
Indian ricegrass
Chamiza
Alkali sacaton
Bluestem (western) wheatgrass

Increasers

Giant dropseed
Poverty threeawn
Fluffgrass
Sand dropseed
Mesa dropseed
Small soapweed
Rubber rabbitbrush
Sand sagebrush
Ring muhly
Mat muhly
Sandhill muhly
Broom snakeweed
Common winterfat
Longleaf Ephedra

Invaders

Lovegrass spp.
Pingue
Lupine
Loco

- b. The decreasers make up 50 percent of the vegetation and the remainder is increasers.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 20 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#23

Range Site Name Sand Hummock (ND)

| Rating | Decreasers (Count all %) | Increasers (Count no more than % shown) | Max. | Invaders (Count none) |
|--------|-----------------------------|-----------------------------------------------|----------------|--------------------------|
| | | | % By Wt. | |
| 2 | Blue grama | Giant dropseed | T | Lovegrass sp. |
| 2 | Galleta | Fluffgrass | 5 | Pingue |
| 3 | Indian ricegrass | Sand dropseed | 10 | Lupine |
| 4 | Chamiza | Mesa dropseed | 5 | Loco sp. |
| 5 | Bluestem (western) | Sand sagebrush | 5 | |
| | wheatgrass | Ring muhly | 5 | |
| 5 | Alkali sacaton | Mat muhly | T | |
| | | Sandhill muhly | 10 | |
| | | Broom snakeweed | 5 | |
| | | Common winterfat | 5 | |
| | | Poverty threeawn | 5 | |
| | | Small soapweed | T | |
| | | Rubber rabbitbrush | 5 | |
| | | Longleaf Ephedra | 5 | |

Maximum total percent 50

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 20 | 15 | 10 | X |

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-2, SD-3)

TG Section II-E

RANGE SITE - No. 24

1. RANGE SITE NAME: Sand Hummock (SD-2, SD-3)

2. CLIMATE:

- a. Precipitation averages from 8 to 15 inches and ranges from an all time low of 2.1 inches to a record high of 43 inches. The greater part occurs during the months of June, July, August, and September. There are extreme fluctuations from year to year, with periodic droughts. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages less than half an inch per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. These high winds in March, April, and May cause extensive erosion on unprotected soils. High temperatures, fairly constant winds, and low humidity cause the average annual evaporation to range up to 107 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during June, July, August, and September. The growing season of the native warm season plants begins after the last frost, March 29 to April 23, and continues as moisture is available until October 15 to November 15, which are the average dates ending the frost free period. Winters are generally mild, however, there is a recorded low of -30°F. The maximum summer temperature on record is 112°F. Average annual temperatures range from 58°F to 63°F.

3. TOPOGRAPHY AND ELEVATIONS:

The topography is generally level, but severely hummocky. The hummocks vary in height from 3 to 8 feet. Elevations vary from 3,000 to 5,500 feet above sea level. The dominant slope for this site is 0 to 3 percent, but may be as much as 15 percent.

4. SOILS:

- a. The significant soils which characterize this site are sands, sandy loams, fine sandy loams, and silty clay loams 20 inches or more in depth. Water intake may vary from rapid to slow and moisture holding capacity may also vary from high to low. Wind erosion is the major factor in the development of this site. The Gothard Soils may be moderately to severely affected by alkali in the interspaces between the hummocks. Wind erosion is constantly rearranging the dunes, covering up some of the vegetation, and exposing the root system of others.
- b. The significant soils in this site may include one or more of the following soils:

SERIES, TYPES, AND PHASES

Mohave wind hummocky
Brownfield soils, wind hummocked
Harroun loamy sand, wind hummocky
Gothard silty clay loam, wind hummocky

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legend.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Sand bluestem
Little bluestem
Bush muhly
Mesa dropseed
Chamiza
Black grama
Sand dropseed
Giant dropseed
Common winterfat
Plains bristlegrass
Arizona cottontop
Spike dropseed

Increasers

Threeawns
Fluffgrass
Sand sagebrush
Mesquite
Littleleaf sumac
Soaptree yucca
Longleaf Ephedra
Broom dalea
Cactus
Senna
Mallow
Dock
Amsonia

Invaders

Peganum
Milkweed
Croton

5. POTENTIAL VEGETATION: (continued)

- b. The decreasers make up 10 to 25 percent of the vegetation and the remainder may be increasers. There may be 75 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is 100 to 150 pounds per acre. *
- d. Herbage covers 10 to 15 percent of the ground surface.

6. SPECIFIC TYPE LOCATIONS:

Along the road to Box M, Ranch headquarters, Hidalgo County.
At the turnoff to the Corriletis Ranch, Dona Ana County.
One-half miles east of Hatch turnoff in Luna County.

* Based on limited plot clippings and estimates.

RANGE CONDITION GUIDE

#24

Range Site Name Sand Hummock (SD-2, SD-3)

| Rating | Decreasers | Increasesers | Max. % By Wt. | Invaders |
|--------|---------------------|---------------------------------------|------------------------|--------------|
| | (Count all percent) | (Count no more than percent shown) | | (Count None) |
| 3 | Chamiza | Sand sagebrush | 60 | Peganum |
| 3 | Mesa dropseed | Mesquite | 50 | Milkweed |
| 3 | Bush muhly | Littleleaf sumac | 40 | Croton |
| 3 | Sand bluestem | Soaptree yucca | 25 | |
| 4 | Black grama | Threeawns | 20 | |
| 4 | Sand dropseed | Tubercled saltbush | 20 | |
| 4 | Giant dropseed | Tobosa | 10 | |
| 5 | Common winterfat | Longleaf Ephedra | 10 | |
| 5 | Plains bristlegrass | Fluffgrass | 10 | |
| 5 | Arizona cottontop | Coville creosotebush | T | |
| 5 | Spike dropseed | Wolfberry | T | |
| 5 | Little bluestem | Condalia | T | |
| | | Loco | T | |
| | | Rocky Mountain zinnia | T | |
| | | Whitestem paperflower | T | |
| | | Desert Bailey | T | |
| | | Broom snakeweed | T | |
| | | Threadleaf groundsel | T | |
| | | Amsonia | T | |
| | | Dock | T | |
| | | Globemallow | T | |
| | | Senna | T | |
| | | Cactus | T | |
| | | Broomdalea | T | |

Maximum total percent 90 to 75 percent

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 10 | 5 | 5 | Any |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 150 | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--High Plains (HP-1)
Central Plains and Valleys (CP-1)

TG Section II-E

RANGE SITE - No. 25

1. RANGE SITE NAME: Loamy Upland (HP-1, CP-1)

2. CLIMATE:

- a. Annual precipitation averages from 15 to 18 inches. Approximately three-fourths of the annual average occurs during the period April to October, inclusive. July and August most commonly receive the highest monthly totals. There are extreme fluctuations from year to year with periodic droughts that have lasted as long as 4 years. Annual rainfall in the area has fluctuated from a high of 37.65 inches to a low of 5.54 inches in a 10 year period. Summer rainfall is characterized by torrential thunder-showers producing high runoff from unprotected soils. Winter precipitation, which averages about 1/2 inch per month, usually occurs in the form of snow.
- b. Wind velocities for the area are high, averaging about 4.5 miles per hour on an annual basis. Spring windstorms occur frequently with velocities in excess of 45 miles per hour, causing severe wind erosion on soils inadequately protected by vegetation. Humidity is low and evaporation high, averaging 60 inches or more during the period April through October.
- c. The frost free season ranges from about 135 days at the higher elevations to 165 days at lower elevations. The principal growing season for native plants occurs from May 15 to September 15 if sufficient moisture is available. Sub zero temperatures will usually occur every year with minimums of -20°F not uncommon. Summers are characterized by warm days and cool nights with maximum temperatures seldom reaching 100°F. The percentage of sunshine is high, averaging about 80 percent of the possible amount.

3. TOPOGRAPHY AND ELEVATIONS:

This site consists of level to gently sloping areas of Plains Upland with smooth to slightly undulating surface topography. Slopes are characteristically under 5 percent. They occur from elevations of approximately 5,000 feet to about 7,000 feet where they join the Foothills of the front range and the lower slopes of isolated mountain masses within the Plains area. This site is the most extensive area within the sub-resource areas.

4. SOILS:

a. This site is characterized by medium to deep soils with loam to silt loam surface textures, underlain by medium to slowly permeable sub soils. Little or no rock or boulders occur on the surface and few to none in the profile to depths of 24 inches.

b. Significant soils series and types of this site are as follows:

| | |
|--------------------------------------|--------------------------------|
| Berthoud loam | Mansker loam |
| Bippus loam | Manwood loam |
| Capulin loam | Pullman loam |
| Carnero loam thick solum | Pullman loam, thin solum phase |
| Clovis loam | Quay (like) loam |
| Dalhart loam | Richfield loam |
| Dalhart loam strongly developed var. | Zita loam |
| Labrier loam | |

c. Complete descriptions of the soils of this site may be found in the Legend for the Standard Soil Surveys in Colfax, Union, and Harding Counties.

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|--------------------|-------------------|-----------------|
| Western wheatgrass | Blue grama | Sleepy grass |
| Sideoats grama | Galleta | Snakeweed |
| Vine mesquite | Buffalo grass | Prickly pear |
| Plains muhly | Wolf tail | Tree cactus |
| Little bluestem | Fringed sage | Three awns |
| Winter fat | Sand dropseed | |
| | Ring muhly | |
| | Creeping muhly | |

b. This site is dominated by a blue grama, western wheatgrass and galleta grass association. Western wheatgrass is the principal decreasing species. Blue grama, galleta grass, and buffalo grass are the principal increasing species and much of the site is at present dominated by blue grama which often makes up more than 80 percent of the total plant composition. Few woody species are found on this site. It may occasionally be invaded by one-seeded juniper along the margins where it joins the Foothills or Breaks where a seed source is available. Tree cactus may occasionally occur and increase to the extent that it forms a significant amount of the plant cover. In climax condition at least 20 percent of the plant cover should be made up of decreasing species.

RANGE SITE - No. 25

5. POTENTIAL VEGETATION: (continued)

c. Annual herbage yield of this site based on limited plot clippings 1,400 to 2,000 pounds in favorable years.

d. Optimum density of plant cover 35 to 40 percent.

6. SPECIFIC TYPE LOCATION:

East side of Highway 39, 1 mile north of Roy, New Mexico.

RANGE CONDITION GUIDE

#25

Range Site Name Loamy Upland (HP-1, CP-1)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|---------------------|------------------------------------|----------------|-----------------|
| | (Count all percent) | (Count no more than percent shown) | % By Wt. | (Count None) |
| 1 | Western wheatgrass | Blue grama | 60 | Sleepy grass |
| 5 | Sideoats grama | Galleta | 10 | Broom snakeweed |
| 5 | Vine mesquite | Buffalo grass | 10 | Prickly pear |
| 5 | Plains muhly | Wolftail | 5 | Cholla cactus |
| 5 | Little bluestem | Fringed sagebrush | 5 | Gumweed |
| 5 | Common winterfat | Sand dropseed | 5 | |
| | | Ring muhly | T | |
| | | Creeping muhly | T | |
| | | Three-awns | T | |

Maximum total percent 70

| Percent by Weight of Potential Vegetation | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Minimum Percent Density | 76-100 | 51-75 | 50-26 | 0-25 |
| | 35 | 35 | 25 | XX |

| Approximate Air-Dry Forage Yields per Acre By: | | | | |
|------------------------------------------------|--------------------------------|------|------|------|
| | Range Condition Classification | | | |
| | Excellent | Good | Fair | Poor |
| Favorable Years | 2,000 | | | |
| Unfavorable Years | 1,400 | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--High Plains (HP-2)
Central Plains and Valleys (CP-2)

TG Section II-E

RANGE SITE - No. 26

1. RANGE SITE NAME: Loamy Upland (HP-2, CP-2)

2. CLIMATE:

- a. Annual average precipitation for this area averages from approximately 14 to 17 inches. About three-fourths of this amount falls during the period April to October inclusive, with July and August usually recording the highest monthly averages. Spring and summer rainfall is characterized by torrential thundershowers of high intensity and short duration that produce high runoff from unprotected soils. There are extreme fluctuations in the amount of rainfall from year to year and recurrent droughts lasting from 3 to 4 years are not infrequent. Annual rainfall in the area ranges from a high of 40 inches to as low as 6.15 inches. Winter moisture may occur as either rain or snow and usually averages less than 1/2 inch per month.
- b. Wind velocities in this area are high and average about 5.3 miles per hour on an annual basis. The spring months are characterized by frequent wind storms with velocities in excess of 45 miles per hour which cause excessive erosion on soils not protected by a good cover of vegetation. Humidity is low and evaporation is high, usually averaging 75 inches during the period April to October inclusive.
- c. The principal growing season of native vegetation occurs during the period May through September inclusive. The frost free season averages 188 days from April 17 to October 22. Summers are hot with maximum temperatures frequently reaching 100°F or more from late May to early September. Winters are characterized by warm sunny days and cold nights, with occasional "northers" that may keep temperatures below freezing for several days. Temperatures of 0°F or lower have occurred in about half of the years of records, with -18°F the lowest temperature of record in the area. The percentage of sunshine is high, averaging 80 percent or more of the possible amount in most years.

3. TOPOGRAPHY AND ELEVATIONS:

This site consists of nearly level to gently sloping Plains Upland, with smooth surface topography. Elevation ranges from approximately 3,800 feet to 5,500 feet.

4. SOILS:

- a. The soils of this site have loam or clay loam surface textures with moderately permeable to slowly permeable subsoils. They are moderately deep to deep. These soils have moderate water intake rates and good water holding capacity.
- b. Significant soils of this site are:

| | |
|----------------------|--------------------------|
| Alma loam | Mansker loam |
| Alma silt loam | Olton loam |
| Amarillo loam | Portales loam |
| Arvana loam | Pullman loam |
| Berthoud (like) loam | Pajarito sandy clay loam |
| Dalhart loam | Quay loam |
| Clovis loam | Tucumcari loam |
| Ima loam | Stegall loam |
| La Lande loam | Zita loam |

- c. Complete soils descriptions for this site may be found in the Descriptive Legend for the Standard Soil Surveys for Curry, Harding, and Quay Counties and the Southwest Quay area.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|--------------------|-------------------|-----------------|
| Sideoats grama | Blue grama | Sand dropseed |
| Little bluestem | Hairy grama | Three-awns |
| Vine mesquite | Galleta | Snakeweed |
| Western wheatgrass | Tobosa | Mesquite |
| Black grama | Buffalo grass | Yucca |
| | Ring muhly | |
| | Tree cactus | |

- b. In climax condition this site is dominated by blue grama. Among the grasses that may be associated with the blue grama are galleta, tobosa, sideoats grama, spike muhly, and minor amounts of vine mesquite. Little bluestem and western wheatgrass are usually confined to depressions or swales where runoff water is concentrated. Few, if any, woody plants are found in the climax.

RANGE SITE - No. 26

5. POTENTIAL VEGETATION: (continued)

c. Total herbage yields, air dry pounds per acre, 1,200 to 1,600 pounds in favorable years.

d. Optimum cover - 30 to 35 percent.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#26

Range Site Name Loamy Upland (HP-2, CP-2)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|---------------------------------------|-----------|-----------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 5 | Sideoats grama | Blue grama | 60 | Sand dropseed |
| 5 | Little bluestem | Hairy grama | 5 | Three-awns |
| 5 | Vine mesquite | Galleta) | 10 | Yucca |
| 5 | Western wheatgrass | Tobosa) | | Mesquite |
| 5 | Black grama | Buffalo grass | 10 | Senecios |
| | | Ring muhly | T | Broom snakeweed |
| | | Cholla cactus | T | Burro grass |
| | | Prickly pear | | |

Maximum total percent 70

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 35 | 35 | 20 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 1,600 | | | |
| Unfavorable Years | 800 | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--High Plains (HP-3)

TG Section II-E

RANGE SITE - No. 27

1. RANGE SITE NAME: Loamy Upland (HP-3)

2. CLIMATE:

- a. Annual precipitation for this area ranges from approximately 14 to 18 inches. Approximately 70 percent of this amount occurs during April to October inclusive. July, August, and September are the months of highest rainfall. Summer rainfall is characterized by torrential thundershowers of high intensity and short duration that produce high runoff from unprotected soils. There are wide fluctuations in the amount of precipitation from year to year and periodic droughts have occurred, some lasting for 4 years or longer. Winter moisture may occur as either rain or snow and usually averages less than 1/2 inch per month. When snow occurs, it melts quickly, and snow cover persisting as long as one week is unusual.
- b. Wind velocities in this area are high. The spring months are characterized by frequent wind storms with velocities in excess of 45 miles per hour, causing severe wind erosion on soils unprotected by adequate vegetation. Humidity is low and evaporation is high, averaging from 75 inches to in excess of 100 inches.
- c. The frost free season of this sub-area ranges from about 185 days in the north to 215 days in the south. Nocturnal temperatures and length of season are adequate for the growth of cotton where edaphic conditions are favorable and irrigation water is available. Principal grasses of this area are warm season species. The principal growing season is during the late summer and early fall, depending on the availability of moisture. Winters are characteristically warm and open, with occasional "northers" dropping the temperature to 0°F or lower for short periods of time in about 1/3 of the years of record. Occasional and infrequent temperatures as low as -25°F have occurred. Summers are hot with temperatures of over 100°F occurring frequently from May through September. The amount of sunshine is high, averaging in excess of 80 percent of the possible amount in most years.

3. TOPOGRAPHY AND ELEVATIONS:

This site consists of nearly level to very gently sloping Plains Upland with smooth surface topography. Elevations range from about 3,000 feet to 4,800 feet.

RANGE SITE - No. 27

4. SOILS:

- a. This range site is made up of soils that are deep to moderately deep, with loamy surface textures and moderately permeable to slowly permeable subsoils on nearly level slopes.
- b. Significant soil series and types of this site are:

| | |
|---------------|---------------|
| Alma loam | La Lande loam |
| Amarillo loam | Mansker loam |
| Arvana loam | Portales loam |
| Clovis loam | Pullman loam |
| Lea loam | Olton loam |
| | Zita loam |

- c. Detailed descriptions of these soil series may be found in the descriptive legend for Standard Soil Surveys in Chaves, Curry, Lea, Roosevelt Counties and the Southwest Quay area.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|-------------------|--------------------|-----------------|
| Black grama | Blue grama | Prickly pear |
| Little bluestem | Hairy grama | Mesquite |
| Arizona cottontop | Buffalo grass | Catclaw |
| Vine mesquite | Tobosa grass | Cholla cactus |
| Sideoats grama | Ring muhly | Snake weed |
| | Three-awns | Senecio |
| | Silver beard grass | Burro grass |
| | Tree cactus | Western ragweed |

- b. This site is dominated by blue grama which usually makes up 70 percent or more of the climax vegetation. In excellent condition 85 percent of the vegetation may be composed of increaser species.
- c. Yields of air dry herbage per acre in favorable years are 1,200 to 1,600 pounds.
- d. Ground cover 35 to 40 percent.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#27

Range Site Name Loamy Upland (HP-3)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|---------------------------------------|-----------|-----------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 3 | Black grama | Blue grama | 60 | Broom snakeweed |
| 5 | Little bluestem | Hairy grama | 5 | Burro grass |
| 5 | Arizona cottontop | Buffalo grass | 10 | Senecio |
| 5 | Vine mesquite | Galleta grass) | 10 | Gumweed |
| 5 | Sideoats grama | Tobosa grass) | | Mesquite |
| | | Silver bluestem | 5 | Annuals |
| | | Cane bluestem | 5 | |
| | | Ring muhly | T | |
| | | Sand muhly | T | |
| | | Creeping muhly | T | |
| | | Cholla cactus | T | |
| | | Prickly pear | T | |
| | | Small soapweed | T | |
| | | Catclaw acacia | T | |

Maximum total percent 70

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 35 | 35 | 20 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 1,400 | | | |
| Unfavorable Years | 700 | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Central Plains and Valleys (CP-3)

TG Section II-E

RANGE SITE - No. 28

1. RANGE SITE NAME: Loamy Upland (CP-3)

2. CLIMATE:

- a. Precipitation and temperature of this site are extremely variable. Average annual precipitation amounts vary from around 5 inches up to 40 inches with the average annual amount equalling close to 14 inches.
- b. The growing season extends for approximately 148 days from May 13 to October 8. Grass makes its greatest surge of growth during the hot summer months of July and August when temperatures reach the 90's and thunderstorm activity may be at its peak. Good growing conditions usually extend through the month of September. On this site blue grama provides the bulk of the forage produced and although it may green up at the crown almost as early as the cool season growers, its greatest amount of growth is made with the advent of hot weather and usual accompanying rainstorm activity.

The climate for this site is quite often severe during the winter months. Fairly heavy amounts of snowfall with subsequent extended periods of sub-zero weather inhibit the movement and grazing of livestock, and may even result in loss of some animals. Snow may remain on the ground for long periods of time. Dry winters also may be experienced during which practically no snow falls and but little rain. These dry winters are reflected in poor forage growth on the cool season growers.

Late winter and early spring winds produce a pronounced drying effect on soil moisture. These winds may attain a high velocity and give rise to the "dusters" common during this period. This site may be seriously damaged by these storms either through the process of removal of the existing topsoil or deposition which may alter the vegetative cover.

RANGE SITE - No. 28

3. TOPOGRAPHY AND ELEVATIONS:

Topography varies from level terrain through undulating slopes and up to slopes of 10 percent. The site may be dissected by washes or bottom land sites. These sites are recognized and delineated where they are of sufficient area to be significant.

Elevation range of this site is from 6,000 feet to 7,200 feet, the higher elevations being located adjacent to the Manzano foothills.

4. SOILS:

a. Soils on this site are moderately deep to deep with loamy surface textures. Water intake rates are moderately high to high and the profile provides high storage.

b. The following soils are included within this site:

- * Witt loam
- * Ildefonso fine sandy loam
- * Longhorn fine sandy loam
- * Negra loam
- * Scholle loam
- * Tucumcari loam
- Alma loam
- Bernal loam
- Bippus loam
- Lalande loam
- Creswell loam
- Harvey loam
- Hassel loam
- Manzano loam
- Mountainair fine, sandy loam
- Mountainair sandy clay loam
- Otero loam
- Pinto loam
- Pinto clay loam
- Stegall loam
- Wilcoxson loam

* Tentative series.

RANGE SITE - No. 28

4. SOILS: (Continued)

Willard very fine sandy loam
Witt clay loam (eroded)
Longhorn sandy clay loam (eroded)
Lycan fine sandy loam

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|-------------------------|-------------------|-------------------|
| Sideoats grama | Blue grama | Burro grass |
| Needle & thread grass | Hairy grama | Mat muhly |
| Junegrass | Buffalo grass | Cholla |
| Spike muhly | Galleta | Sandhill muhly |
| Black grama | Sand dropseed | Prickly pear |
| Indian ricegrass | Spike dropseed | Bigelow sagebrush |
| Little bluestem | Mesa dropseed | |
| Western wheatgrass | Three-awn | |
| Texas timothy | Ring grass | |
| New Mexico feathergrass | Snakeweed | |
| Winterfat | Fluffgrass | |
| Metcalf muhly | Rabbitbrush | |
| Vine mesquite | Yucca | |
| Chamiza | Fringed sage | |

- b. In high condition a good mixture of palatable perennial grasses is present on this site. Blue grama is the dominant species but usually will not exceed 50 percent of the total plant composition. Associated with blue grama are little bluestem, sideoats grama, black grama, needle & thread grass, western wheatgrass, Indian ricegrass, junegrass, galleta, and spike muhly. A small percentage composition of dropseeds, chamise, winterfat, buffalo grass, and hairy grama may be present. Pinon & juniper may invade this site.
- c. Herbage yield on this site is approximately 1,250 pounds per acre, air dry.
- d. Ground cover is uniformly spaced and both standing mulch and decumbent litter occupy a high percentage of the interspaces. Density of living vegetation is 35 to 40 percent.

TG Section II-E

RANGE SITE - No. 28

6. SPECIFIC TYPE LOCATION:

Area in immediate vicinity of Clines Corners (Hagerman Ranch), also Pounds Ranch, and northwest of Encino.

RANGE CONDITION GUIDE

#28

Range Site Name Loamy Upland (CP-3)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|-------------------------|------------------------------------|-----------|-------------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 3 | Sideoats grama | Blue grama) | 50 | Burro grass |
| 4 | Needle and thread | Hairy grama) | | Mat muhly |
| 4 | Prairie junegrass | Buffalo grass | 10 | Cholla |
| 4 | Spike muhly | Galleta | 10 | Sandhill muhly |
| 4 | Black grama | Sand dropseed) | | Bigelow sagebrush |
| 3 | Indian ricegrass | Spike dropseed) | 5 | Prickly pear |
| 3 | Little bluestem | Mesa dropseed) | | Pinon |
| 3 | Western wheatgrass | Three-awns | 5 | Juniper |
| 5 | Texas timothy | Ring muhly | T | |
| 4 | New Mexico feathergrass | Snakeweed | T | |
| 4 | Winterfat | Fluffgrass | T | |
| 5 | Metcalfes muhly | Rabbitbrush | T | |
| 5 | Vine-mesquite | Yucca | T | |
| 4 | Chamiza | Fringed sage | T | |

Maximum total percent 75

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 40 | 30 | 20 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 1,250 | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Central Plains and Valleys (CP-4)

TG Section II-E

RANGE SITE - No. 29

1. RANGE SITE NAME: Loamy Upland (CP-4)

2. CLIMATE:

- a. Annual average precipitation for this area ranges from approximately 12 to 16 inches. About three-fourths of the annual average precipitation occurs between April 1 and October 1, with July, August, and September having the highest monthly averages. Most of the rainfall occurs as thundershowers of high intensity and short duration, with heavy runoff from unprotected soils. There are extreme fluctuations in both the amount and time of rainfall from year to year. Periodic droughts, lasting for 3 to 4 years have occurred. Annual rainfall in the area has ranged from as high as 30 or more inches to as low as 4 inches.
- b. Wind velocities are high in this area. The spring months are characterized by frequent wind storms that cause excessive erosion on soils that are not adequately protected by vegetative cover. Humidity is low and evaporation is high.
- c. The frost free season ranges from approximately 175 to over 200 days. Summers are characterized by warm days and cool nights with occasional daytime temperatures reaching 100°F from late May to early September. Winters are characterized by warm sunny days and cold nights. Occasional storms may result in below freezing weather for a period of 2 or 3 days. Temperatures of 0°F or lower have occurred in about 1/3 of the years of record with -22°F the lowest temperature that has been recorded in the area.

3. TOPOGRAPHY AND ELEVATIONS:

This site occupies the more level areas of the generally hilly and sloping terrain that lies between the higher mountains and the Pecos Valley. Elevations range from approximately 3,400 feet to 4,600 feet.

4. SOILS:

- a. This site is made up of deep to moderately deep loamy soils that have moderate rates of water intake and good water holding capacity.

4. SOILS: (continued)

b. Significant soils of this site are:

Reagan loam
* Yarbrow loam
Reeves loam

c. Complete descriptions of these soils may be found in the Standard Soil Survey Record for Chaves and Eddy Counties.

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Blue grama
Black grama
Sideoats grama
Silver beard
Cane bluestem
Vine mesquite
Hairy grama

Increasers

Tobosa
Burro grass
Buffalo grass
Three-awns
Ring muhly
Mat muhly
Yucca

Invaders

Hairy tridens
Fluff grass
Sand dropseed
Mesquite
Cholla cactus
Creosote bush
Javalina bush
Snake weed
Senecio
Annuals

b. The pristine vegetation of this site was dominated by a mixture of blue and black grama. Important associated species were sideoats grama, Tobosa, and vine mesquite. Under heavy use Tobosa and burro grass are aggressive increasers. Mesquite is often an aggressive invader of this site.

c. Total herbage yield of this site based on plot clippings is 800 to 1,200 pounds air dry material per acre.

d. Herbage density 30 to 35 percent.

6. SPECIFIC TYPE LOCATION:

Near center of Sec. 28, T 14 S, R 23E, NMPM.

* Tentative series.

RANGE CONDITION GUIDE

#29

Range Site Name Loamy Upland (CP-4)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|------------------------------------|-----------|-----------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Blue grama | Tobosa) | 15 | Hairy tridens |
| 3 | Black grama | Galleta) | | Fluff grass |
| 4 | Sideoats grama | Buffalo grass | 10 | Sand dropseed |
| 5 | Silver bluestem | Three-awns | 5 | Mesquite |
| 5 | Cane bluestem | Ring muhly | T | Creosote brush |
| 5 | Vine mesquite | Mat muhly | T | Javalina bush |
| | | Yuccas | T | Broom snakeweed |
| | | Catclaw acacia | T | Senecio |
| | | Cholla cactus | T | Annuals |
| | | Sand dropseed | 5 | |

Maximum total percent 35

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 30 | 20 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 1,200 | | | |
| Unfavorable Years | 800 | | | |

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E.W.W.

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Western Plateaus and Mesas (WP-1)

TG Section II E

RANGE SITE - No. 30

1. RANGE SITE NAME: Loamy Upland (WP-1)

2. CLIMATE:

- a. Precipitation varies from less than 10 inches in small areas to 13 inches at the higher elevations adjacent to the lower elevations of the Mountain Range Sites and Hills. Approximately one-half of the moisture occurs in the form of high intensity thundershowers over a short period of time. The high intensity rainfall period is the summer months of July, August, and September. Runoff may be excessive on the sites in the poorer range condition classes. Snowfall throughout the winter months accounts for the remaining moisture. Early and late winter moisture in the form of light rain occurs some years, but contributes little to the moisture supply.
- b. Southwest winds are common in the early spring, melting winter snow accumulations and evaporating most of the soil moisture before the growing season starts.
- c. The growing season is about 140 days with 110 days frost-free from June 10 to September 18. Low rainfall years will result in early killing frost in the fall. Years of higher rainfall in the late fall will delay the frost, resulting in a longer growing season.

3. TOPOGRAPHY AND ELEVATION:

- a. Although the dominant slope is around 3 percent, the topography may be broken, rolling, undulating, and cut by arroyos. Other sites such as hills may occur interspersed within the site.

4. SOILS:

- a. Soils are deep to moderately deep, medium-textured ranging from very fine sandy loam to sandy clay loams. Water holding capacities are high, with water and air moving slowly to moderately through the subsoil. The parent material of these soils varies widely. Sites in the lower range conditions have slow intake rates, whereas good range condition classes take water rapidly. Light showers are of little benefit on these medium-textured soils.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

*Caja loam
*Calabasas loam
Hondo loam
*Panky very fine sandy loam

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Blue grama
Bluestem (western) wheat-
grass
Alkali sacaton
Chamiza
Common winterfat
Indian ricegrass
Galleta

Increasers

Big sagebrush
Poverty threeawn
Rubber rabbitbrush
Broom snakeweed
Ring muhly
Longleaf Ephedra

Invaders

Pinon
Juniper
Pingue
Loco
Lupine

- b. The decreaseers make up 65 percent of the vegetation and the remainder is increasers. There may be _____ percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 30 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#30

Range Site Name Loamy Upland (WP-1)

| Rating | <u>Decreasers</u> | <u>Increasesers</u> | Max. | <u>Invaders</u> |
|--------|--------------------|------------------------------|----------------|-----------------|
| | (Count all %) | (Count no more than % shown) | % By Wt. | (Count none) |
| 1 | Blue grama | Big sagebrush | 20 | Pinon |
| 3 | Bluestem (western) | Poverty threeawn | 5 | Juniper |
| | wheatgrass | Ring muhly | T | Pingue |
| 3 | Chamiza | Rubber rabbitbrush | 5 | Loco |
| 4 | Indian ricegrass | Broom snakeweed | 5 | Lupine |
| 2 | Galleta | Longleaf Ephedra | T | |
| 4 | Common winterfat | | | |
| | Alkali sacaton | | | |

Maximum total percent 35

| | <u>Range Condition Classification</u> | | | |
|-------------------------------------------|---------------------------------------|-------------|-------------|-------------|
| | <u>Excellent</u> | <u>Good</u> | <u>Fair</u> | <u>Poor</u> |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 20 | 10 | X |

Approximate Air-Dry Forage Yields By:

| | <u>Range Condition Classification</u> | | | |
|-------------------|---------------------------------------|-------------|-------------|-------------|
| | <u>Excellent</u> | <u>Good</u> | <u>Fair</u> | <u>Poor</u> |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

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6-21-62
R.A.A.

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Western Plateaus and Mesas (WP-2)

TG Section II E

RANGE SITE - No. 31

1. RANGE SITE NAME: Loamy Upland (WP-2)

2. CLIMATE:

- a. Precipitation varies from 10 inches at Chaco Canyon to 14 inches at Magdalena and Quemado. Summer thunder shower type rains occur through the months of July, August, and September. These rains are often of high intensity for a short period of time. Winter snow accounts for some moisture. April, May, and June constitute the dry period of the year.
- b. Wind velocities are high in this area in comparison to the rest of the United States. High wind during March and April causes much erosion and evaporation of moisture on unprotected areas.
- c. Frost-free period is 120 days with about 160 days of growing season limited by moisture conditions. Winter months are quite cold.

3. TOPOGRAPHY AND ELEVATION:

- a. The topography is gently sloping, with from one to five percent slope.
- b. The site occurs at an elevation of between 6,500 feet at Quemado and Magdalena to 7,200 feet at Ramah.

4. SOILS:

- a. Soils on this site are deep to moderately deep, medium-textured on the surface and have a high water storage capacity. Range condition affects the water intake rate. Sites in the lower range condition classes may take up water rather slowly while water intake on the good range condition classes will be much faster. Soils are usually developing in old alluvium from various parent materials. Light showers are of little benefit on these soils.
- b. The site may include one or more of the following soils:

SERIES, TYPES, AND PHASES

| | |
|---------------|--------------------------------|
| Hondo loams | Penistaha very fine sandy loam |
| Witt loam | *Chambley loam |
| Harvey loam | Chacra loam |
| Blanding loam | Progresso loam |
| *Flake loam | |

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|------------------------------------|--------------------|-----------------|
| Galleta | Poverty threeawn | Pinon |
| Blue grama | Sand dropseed | Juniper |
| Chamiza | Ring muhly | Loco |
| Hairy grama | Rubber rabbitbrush | Pingue |
| Bluestem (western) wheat- grass | Cactus spp. | Lupine |
| Indian ricegrass | Broom snakeweed | |
| Common winterfat | Longleaf Ephedra | |
| | Big sagebrush | |

- b. The decreaseers make up 50 percent of the vegetation and the remainder is increasers. There may be _____ percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers from 30 to 35 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#31

Range Site Name Loamy Upland (WP-2)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|--------------------|------------------------------|----------------|--------------|
| | (Count all %) | (Count no more than % shown) | % By Wt. | (Count none) |
| 2 | Galleta | Poverty threeawn | 5 | Pinon |
| 1 | Blue grama | Sand dropseed | 10 | Juniper |
| 4 | Chamiza | Ring muhly | 5 | Loco |
| 2 | Hairy grama | Cactus spp. | T | Pingue |
| 2 | Bluestem (western) | Broom snakeweed | T | Lupine |
| | wheatgrass | Big sagebrush | 10 | |
| 3 | Indian ricegrass | Rubber rabbitbrush | 5 | |
| 3 | Common winterfat | Longleaf Ephedra | T | |

Maximum total percent 50

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 35 | 25 | 15 | X |
| Maximum Percent Density | 40 | | | |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Western Plateaus and Mesas (WP-3)

TG Section II-E

RANGE SITE - No. 32

1. RANGE SITE NAME: Loamy Upland (WP-3)

2. CLIMATE:

- a. Precipitation averages from 13 to 16 inches and ranges from an all time low of 5.8 inches to a record high of 31.17 inches. Approximately one-half of the precipitation occurs during the months of July, August, and September. There are extreme fluctuations from year to year with periodic drouths. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages one inch per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. High temperatures, fairly constant winds, and low humidity cause the average annual evaporation to range up to 93 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during June, July, and August. The growing season of the native warm season plants begins after the last frost, April 15 to April 28, and continues as moisture is available until October 16 to November 2, which are the average dates ending the frost free period. Winters are generally mild. Average annual temperatures range from 55°F to 60°F.

3. TOPOGRAPHY AND ELEVATIONS:

This range site occurs on the gentle to moderately sloping areas. Occasional drainage may dissect the site. Slopes may vary from 0 to 10 percent. Elevations vary from 4,500 feet to 6,500 feet above sea level.

4. SOILS:

- a. The significant soils that characterize this site have surface textures of loam and sandy clay loam and are 10 inches or more in depth. These soils have an adequate water holding capacity. Water intake rates are generally good if plant cover is adequate. When unprotected by vegetative cover these soils are susceptible to erosion from both water and wind. These soils are usually alluvial fan material and may be from various parent materials.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Mohave like
 Mohave Tucson, like.
 Tubac like

- c. When standard soil surveys are initiated, complete soil series descriptions will be available in the Soil Survey Descriptive Legend, or the State Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|-------------------------|--------------------------|------------------|
| Sideoats grama | Threeawns | Mesquite |
| Blue grama | Sand dropseed | Annuals |
| Hairy grama | Ring muhly | American tarbush |
| Black grama | Tobosa | Creosotebush |
| Arizona cottontop | Creeping muhly | |
| New Mexico feathergrass | Bottlebrush Squirreltail | |
| Plains lovegrass | Baileya | |
| Bush muhly | Wavyleaf thistle | |
| Vine-mesquite | Threadleaf groundsel | |
| Common winterfat | Rocky Mountain zinnia | |
| | Globemallow | |
| | Soaptree yucca | |
| | Wright Eriogonum | |
| | Cactus | |
| | Broom snakeweed | |
| | Longleaf Ephedra | |
| | Condalia | |
| | Wolfberry | |
| | Loco | |

- b. The decreaseers make up 60 percent of the vegetation and the remainder may be increasers.
- c. Annual herbage yield of this site based on plot clipping is 800 to 1,000 pounds per acre. *
- d. Herbage covers 20 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

Near the Mule Creek turn-off in the Grant County.

* Based on limited plot clippings and estimates.

RANGE CONDITION GUIDE

#32

Range Site Name Loamy Upland (WP-3)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|--------------------------|------------------------------|----------------|------------------|
| | (Count all %) | (Count no more than % shown) | % By Wt. | (Count None) |
| 1 | Blue grama | Three-awns | 15 | Mesquite |
| 1 | Black grama | Tobosa | 10 | American tarbush |
| 2 | Sideoats grama | Wright Eriogonum | 5 | Creosotebush |
| 2 | Bush muhly | Bottlebrush Squirreltail | 5 | |
| 3 | Common winterfat | Ring muhly | 5 | |
| 4 | Arizona cottontop | Sand dropseed | 5 | |
| 5 | Hairy grama | Loco | T | |
| 5 | New Mexico feather-grass | Wolfberry | T | |
| 5 | Plains lovegrass | Condalia | T | |
| 5 | Vine-mesquite | Longleaf Ephedra | T | |
| | | Broom snakeweed | T | |
| | | Cactus | T | |
| | | Soaptree yucca | T | |
| | | Globemallow | T | |
| | | Rocky Mountain zinnia | T | |
| | | Threadleaf groundsel | T | |
| | | Wavyleaf thistle | T | |
| | | Baileya | T | |
| | | Creeping muhly | T | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 20 | 15 | 10 | Any |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

6-7-62
I.W.D.

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Northern Desert Valleys and Mesas (ND)

TG Section II E

RANGE SITE - No. 33

1. RANGE SITE NAME: Loamy Upland (ND)

- a. The annual precipitation varies from an average annual 6.76 inches in the San Juan Valley of the District to 12.37 inches in the eastern portion. Approximately one-third of these amounts falls in the form of winter snow from December through March. Intense summer thunder showers are common throughout the district during July, August, and September when average amounts for this season equal 3 to 4 inches. The driest period of the year is ordinarily late spring (May-June) and fall (Oct.-Nov.).
- b. Spring winds contribute to dry conditions over most of the District.
- c. The principal growing season on this site is during the summer months when precipitation amounts and temperatures are optimum for blue grama. At elevations above 6,500 feet, cool season growers make a considerable production during March and April; and after a dormant summer season, will make some growth in the fall (Oct.-Nov.). Frost-free periods range from about 140 days in the higher portion of the district to 163 days in the lower portion. These periods extend from May 8 and May 22 to October 9 and October 18.

3. TOPOGRAPHY AND ELEVATION:

- a. This site occurs throughout the district on open, flat to moderately sloping areas. Maximum slopes for this site are 10 percent. Elevation varies from 5,000 feet to 7,000 feet. At lower elevations, the salt desert vegetation is encountered while above 6,500 feet the mountain vegetation may be found. The site includes all exposures.

4. SOILS:

- a. Soils of this site are deep to moderately deep and moderately permeable. The subsoils are dominantly medium-textured, but may include both sandy and moderately fine-textured subsoils. They are usually underlain by sandstone or, in some cases, gravel. These soils are capable of storing a considerable amount of water for plant use during dry periods. Above 5,500 feet elevation, snowfall or winter moisture is conducive to the development of the Northern Desert Shrub Plant association, which is signified by the presence of big sagebrush. The degree of erosion varies directly with slope and stage of deterioration. Light showers are of little benefit on these medium-textured soils.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Mesa loam

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Blue grama
Hairy grama
Galleta
Bluestem (western) wheatgrass
Indian ricegrass
Needleandthreadgrass
Alkali sacaton
Chamiza

Increasers

Poverty threeawn
Ring muhly
Sand dropseed
Broom snakeweed
Rubber rabbitbrush
Big sagebrush
Cactus spp.
Common winterfat
Longleaf Ephedra
Small soapweed

Invaders

Pinon
Juniper
Pinyon
Loco
Lupine

- b. The decreaseers make up 65 percent of the vegetation and the remainder is increasers.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 30 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#33

Range Site Name Loamy Upland (ND)

| Rating | Decreasers (Count all %) | Increasers (Count no more than % shown) | Max. % By Wt. | Invaders (Count none) |
|--------|----------------------------------|-----------------------------------------------|------------------------|--------------------------|
| 1 | Blue grama | Common winterfat | T | Pinon |
| 5 | Hairy grama | Poverty threeawn | 10 | Juniper |
| 2 | Galleta | Ring muhly | T | Pingue |
| 2 | Bluestem (western) wheatgrass | Sand dropseed | T | Loco |
| | | Broom snakeweed | 5 | Lupine |
| 4 | Indian ricegrass | Big sagebrush | 15 | |
| 5 | Needleandthreadgrass | Cactus spp. | T | |
| 5 | Chamiza | Rubber rabbitbrush | 5 | |
| 5 | Alkali sacaton | Longleaf Ephedra | T | |
| | | Small soapweed | T | |

Maximum total percent 35

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 20 | 10 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-1)

TG Section II-E

RANGE SITE - No. 34

1. RANGE SITE NAME: Loamy Upland (SD-1)

2. CLIMATE:

- a. Average annual precipitation is approximately 8.4 inches with annual amounts varying from 3.78 inches to 16.3 inches. Ordinarily, about 45 percent of the annual precipitation is received during the summer months of July through September. Summer rain is in the form of afternoon thunderstorms as a result of cumulus buildup during the day. Storms are usually brief and torrential during this period and may be accompanied by high velocity winds. Winter storms are usually of a more general nature and either rain or snow may fall. Occasionally, snowstorms occur that will leave accumulations of up to 6 inches but ordinarily melting is quite rapid.
- b. Spring winds lasting until the beginning of summer thundershower activity may cause damage to this site if vegetative cover becomes too thin.
- c. Temperatures vary from a few degrees below zero in January or February to readings up close to 100°F during the hottest part of the summer. Prolonged cold spells during winter months may influence the relative composition of this site and favor a dominance of blue grama over black grama. The growing season for this area is considered to be from about mid or early April through the last of October or for a period of approximately 198 days and favors warm season growers. Because of climatic factors and elevation, the site is represented by both cool season and warm season growers, however, June is regarded as a critical month from the standpoint of native vegetation development on this site. Hot, dry weather is the normal condition to be expected at this time and any accumulation of soil moisture may be quickly lost.

3. TOPOGRAPHY AND ELEVATIONS:

This site occurs as level to undulating terrain at elevations ranging from 4,800 feet in the southern limits of the sub-area to 5,800 feet in the northern portion. The site is in an upland position topographically but may be dissected by arroyos of varying size as inclusions within the site.

4. SOILS:

- a. Soils of this site vary from moderately deep to deep and are of medium or loamy texture on the surface. Lime may be encountered in the sub-soil at depths below 10 inches. These soils have moderate intake rates and moderate to slowly permeable subsoils.

RANGE SITE - No. 34

4. SOILS: (continued)

b. Dominant soils of this site include the following:

Madurez loam
Tijeras loam

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|---------------------|-------------------|-----------------|
| Blue grama | Sand dropseed | Creosote bush |
| Black grama | Mesa dropseed | Cholla |
| Hairy grama | Spike dropseed | Prickly pear |
| Sideoats grama | Three-awn | Mesquite |
| Vine mesquite | Ring muhly | Tar bush |
| Porter's muhly | Fluffgrass | Smokebush |
| Alkali sacaton | Galleta-tobosa | |
| Cane beardgrass | Burro grass | |
| Indian ricegrass | Pappusgrass | |
| Plains bristlegrass | Apache plume | |
| Winterfat | Squawbush | |
| Chamise | Snakeweed | |
| | Yucca | |
| | Mormon tea | |

Squawbush and Apache plume are browse species found on this site but only as scattered individual plants.

At its lower elevational limits, a few plants of mesquite and creosote bush occur as invaders. Chamise and winterfat are represented on this site but only in quite limited amounts and the presence or absence of these species may depend upon type and season of use. Yucca is a common increaser plant on this site.

b. Decreasers occupy about 70 percent of the plant composition. In high condition this site produces a good mixture of blue and black grama. Relative amounts of each of these species are dependent on weather conditions and type of management. In addition to these two dominant species, Indian ricegrass, Porter's or bush muhly, sideoats grama, hairy grama, plains bristlegrass, galleta, and silver beardgrass are present. Relative amounts of these subdominant species are dependent upon textural variation in the surface soil and type of management.

5. POTENTIAL VEGETATION: (continued)

b. (continued)

As this site extends southward, galleta and tobosa may become intermixed until the site becomes loamy upland (SD-2). Also of some importance as sub-dominants are dropseeds, including sand, mesa, and spike dropseed. Hairy and sideoats grama may be found only where slightly rocky arroyo sides are included within this site.

c. Total herbage yield varies from 250 pounds per acre to 1,500 pounds per acre in above normal production years.

d. Since this site is subjected to recurring drought periods, a total density of ground cover in excess of 30 percent is unlikely. Successive years of drought may profoundly influence the relative composition of this site.

6. SPECIFIC TYPE LOCATION:

LaMajada Grant, northeast of Santo Domingo.

Elena Gallegos Grant, north of Albuquerque.

Portion Belen Mesa.

Isleta Reservation, east of Los Padillas.

RANGE CONDITION GUIDE

#34

Range Site Name Loamy Upland (SD-1)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|---------------------------------------|-----------|---------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 2 | Blue grama | Sand dropseed) | 15 | Creosote bush |
| 1 | Black grama | Mesa dropseed) | | Cholla |
| 4 | Hairy grama | Spike dropseed) | | Prickly pear |
| 4 | Sideoats grama | Three-awns | | Mesquite |
| 4 | Vine-mesquite | Ring muhly | 10 | Tarbush |
| 3 | Bush muhly | Fluffgrass | | Smokebush |
| 5 | Alkali sacaton | Galleta) | | |
| 5 | Cane beardgrass | Tobosa) | | |
| 4 | Indian ricegrass | Burrograss | 5 | |
| 5 | Plains bristlegrass | Pappus grass | T | |
| 4 | Winterfat | Apache plume | 5 | |
| 4 | Chamiza | Skunkbush sumac | 5 | |
| | | Snake weed | T | |
| | | Yucca | 5 | |
| | | Mormon tea | T | |

Maximum total percent 45

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 25 | 20 | xx |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 1,500 | | | |
| Unfavorable Years | 250 | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-2)

TG Section II-E

RANGE SITE - No. 35

1. RANGE SITE NAME: Loamy Upland (SD-2)

2. CLIMATE:

- a. Precipitation averages from 8 to 12 inches and ranges from an all time low of 2.9 inches to a record high of 25.7 inches. The greater part occurs during the months of July, August, and September. There are extreme fluctuations from year to year, with periodic droughts. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages less than half an inch per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. These high winds in March, April, and May cause extensive erosion on unprotected soils. High temperatures, fairly constant winds, and low humidity cause the average annual evaporation to range up to 107 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during July, August, and September. The growing season of the native warm season plants begins after the last frost, March 29 to April 23, and continues as moisture is available until October 15 to November 12, which are the average dates ending the frost free period. Winters are generally mild, however, there is a recorded low of -10°F . The maximum summer temperature on record is 110°F . Average annual temperatures range from 58°F to 60°F .

3. TOPOGRAPHY AND ELEVATIONS:

The dominant slope for this site ranges from 1 to 3 percent. Slopes may be undulating, broken by arroyos and dry lake beds, and occasionally broken by the presence of Stony Hills site. The elevation is between 4,000 and 5,500 feet above sea level.

4. SOILS:

- a. Soil depths vary from moderately deep to deep, more often deep. Surface textures are medium. Subsoil and substrata are usually moderately permeable. Lime zones frequently occur below 20 inches. Water intake rates will be moderate if grass cover is adequate. Moisture holding capacity is medium to high.

RANGE SITE - No. 35

4. SOILS: (continued)

- b. The significant soils in this site may include one or more of the following soils:

SERIES, TYPES, AND PHASES

Pinal (like) loam
Gauthier sandy clay loam
Gilman loam
Mimbres loam
Turkey Creek loam
Frye loam
Mohave sandy clay loam
Tucson sandy clay loam
Karro loam
Mohave loam

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legend, or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Black grama
Bush muhly
Sidecoats grama
Alkali sacaton
Blue grama
Silver bluestem
Cane bluestem
Vine-mesquite
Arizona cottontop
Plains bristlegrass

Increasers

Threeawns
Tobosa
Sand dropseed
Burrograss
Fluffgrass
Pappus grass
Common winterfat
Chamiza
Littleleaf sumac
Apache plume
Cactus
Broom snakeweed
Longleaf Ephedra
Soaptree yucca
Loco
Spiny allthorn
Condalia

Invaders

Mesquite
American tarbush
Creosotebush
Catclaw

RANGE SITE - No. 35

5. POTENTIAL VEGETATION: (continued)

- b. The decreasers make up 40 percent of the vegetation and the remainder may be increasers. There may be 15 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clippings is 700 to 900 pounds per acre. *
- d. Herbage covers 15 to 20 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

NE of Deming along road to Hatch in Sec. 3, T 23S, R 8W, Luna County.
16 miles W of Lordsburg on U.S. Highway 70, Hidalgo County.
2 miles SW of Cuchillo, Sierra County.

* Based on limited plot clippings and estimates.

RANGE CONDITION GUIDE

#35

Range Site Name Loamy Upland (SD-2)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|---------------------------------------|-----------|------------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Black grama | Broom snakeweed | T | Cresotebush |
| 2 | Bush muhly | Littleleaf sumac | T | Mesquite |
| 3 | Sideoats grama | Cactus | T | American tarbush |
| 4 | Alkali sacaton | Apache plume | T | Catclaw |
| 4 | Blue grama | Whiplash Pappusgrass | T | |
| 4 | Silver bluestem | Longleaf Ephedra | T | |
| 4 | Cane bluestem | Soaptree yucca | T | |
| 5 | Vine-mesquite | Loco | T | |
| 5 | Arizona cottontop | Allthorn | T | |
| 5 | Plains bristlegrass | Spiny Condalia | T | |
| | | Fluffgrass | 5 | |
| | | Burrograss | 5 | |
| | | Chamiza | 5 | |
| | | Sand dropseed | 10 | |
| | | Threeawns | 15 | |
| | | Tobosa | 15 | |
| | | Common winterfat | 15 | |

Maximum total percent 60

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 15 | 10 | 5 | Any |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 700 | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-3)

TG Section II-E

RANGE SITE - No. 36

1. RANGE SITE NAME: Loamy Upland (SD-3)

2. CLIMATE:

- a. Arid to semi-arid climate with an annual precipitation for this resource area averaging from 11 to 15 inches. The wettest year on record was at Ft. Sumner (41.37 inches) and the driest year was at Carlsbad (2.95 inches). Approximately 75 percent of the annual rainfall occurs from May to October inclusive. June, July, August, and September are normally the months of highest rainfall. Summer rainfall is characterized by torrential thundershowers of high intensity and short duration that produce high runoff from unprotected soils. There are extreme fluctuations in the amount of precipitation from year to year, and periodic droughts have occurred, some lasting for 4 years or longer. More years of below average rainfall can be expected than those above the average precipitation. Winter moisture may occur in the form of rain and/or snow and usually averages less than half an inch per month. When snow occurs, it melts quickly, and snow cover persisting as long as one week is unusual.
- b. Wind velocities in this area are high. February, March, April, and May are characterized by frequent wind storms with velocities in excess of 50 miles per hour, causing severe wind erosion on soils unprotected by adequate vegetation. Humidity is low and evaporation is high, averaging from 70 to 85 inches to in excess of 120 inches (from an evaporation pan).
- c. The frost free season of this sub-area ranges from about 187 days at Ft. Sumner in the northern part to 228 days at Carlsbad Caverns in the southern part. The growing season of the native warm season plants begins after the last frost, April 2 to 19 (South to North) and continues as moisture is available until the latter part of October or the first of November ending the frost free period. Winters are characteristically warm and open, with occasional "northers" dropping the temperature to 0°F or lower for short periods of time in about one-third of the years on record. Occasional and infrequent temperatures as low as -30°F have occurred. Summers are hot with temperatures of over 105°F occurring frequently from May through September. The annual average temperature varies from 59°F at Roswell to 63°F at Carlsbad.

3. TOPOGRAPHY AND ELEVATIONS:

The topography is level to gently undulating. It is frequently broken by narrow bottomland sites, dry lake beds, and may be intermixed with Shallow Upland or Loamy Bottomland sites. The dominant slopes for this site are from 1 to 3 percent. Elevation ranges from 3,100 feet around Jal and Carlsbad areas to 4,200 feet around the Ft. Sumner area. Areas around Lulu, Cornudas Mountains, and small isolated places in the resource area may be up to 5,000 feet in elevation.

4. SOILS:

- a. The significant soils which characterize this site are loams 10 inches or more in depth. Occasionally there is a well developed caliche (lime cemented) hard pan. Water intake rates are moderate and moisture holding capacity is good. Sub-soil and substrata are moderately or rapidly permeable. These soils are more subject to water erosion than wind erosion from intense storms when the vegetative cover is sparse. However, neither is generally a serious problem.
- b. The significant soils in this site may include one or more of the following soils:

SERIES, TYPES, AND PHASES

Reagan loam
Reeves loam
Yarbro loam
Portales loam
Zita loam
Lea loam
Mansker loam
Quay loam
Lea loam, shallow phase
Arvana loam

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legends or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Black grama
Blue grama

Increasers

Tobosa
Buffalograss

Invaders

Broom snakeweed
Groundsel

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5. POTENTIAL VEGETATION: (continued)

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|--------------------------|-------------------|-----------------|
| Sideoats grama | Three-awn spp. | Mesquite |
| Vine-mesquite | Mesa muhly | Annuals |
| Alkali Sacaton | Burrograss | |
| Bush muhly | Ring muhly | |
| Plains bristlegrass | Sand dropseed | |
| Cane bluestem | Fluff grass | |
| Bottlebrush squirreltail | Silver bluestem | |
| Fourwing saltbrush | Red muhly | |
| | Loco | |
| | Prairie zinnia | |
| | Globe mallow | |
| | American tarbush | |
| | Wolfberry | |
| | Little soapweed | |
| | Longleaf ephedra | |
| | Condalia | |
| | Prickly pear | |
| | Prickly poppy | |
| | Common winterfat | |

The decreaseers make up 65 percent of the vegetation and the remainder is increasers.

- b. The potential vegetation is black grama, blue grama, sideoats grama, bush muhly, and vine mesquite. Three-awn spp, tobosa, buffalograss, burrograss, silver bluestem, cane bluestem, and fluffgrass may make up 25 percent. Browse species like fourwing saltbush, winter fat, and wolfberry may make up 5 percent of the cover. Forbs like prairie zinnia, globe mallow, and prickly poppy may make up 5 percent.
- c. Annual herbage yields based on plot clippings vary from 2,800 pounds per acre in favorable years to 250 pounds per acre in less favorable years when the site is in excellent condition. *
- d. Basal herbage covers 20 to 25 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

The tobosa flats west of the Pecos River extending from north of Roswell to below Carlsbad, Sec. 25, T 10S, R 23E, in Chaves County.

* Based on limited clipping data and estimates.

RANGE CONDITION GUIDE

#36

Range Site Name Loamy Upland (SD-3)

| Rating | Decreasers (Count all percent) | Increasers (Count no more than percent shown) | Max. % | Invaders (Count None) |
|--------|-----------------------------------|-----------------------------------------------------|-----------|--------------------------|
| | | | By Wt. | |
| 1 | Black grama | Tobosa | 10 | Broom snakeweed |
| 1 | Blue grama | Buffalograss | 15 | Goundsel |
| 4 | Sideoats grama | Threeawns | 15 | Mesquite |
| 4 | Bottlebrush Squirreltail | Sand dropseed | 10 | Annuals |
| 5 | Vine mesquite | Silver bluestem | 10 | Bladderpod |
| 5 | Alkali Sacaton | Common winter fat | 10 | Hairy tridens |
| 5 | Bush muhly | Red muhly | 5 | |
| 5 | Plains bristlegrass | Mesa muhly | 5 | |
| 5 | Cane bluestem | Burrograss | 5 | |
| 5 | Fourwing saltbrush | Ring muhly | 5 | |
| | | American Tarbush | 5 | |
| | | Fluffgrass | T | |
| | | Loco | T | |
| | | Prairie zinnia | T | |
| | | Globe mallow | T | |
| | | Wolfberry | T | |
| | | Little soapweed | T | |
| | | Longleaf Ephedra | T | |
| | | Condalia | T | |
| | | Pricklypear | T | |
| | | Pricklypoppy | T | |
| | | Wavyleaf thistle | T | |

Maximum total percent 35

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 25 | 25 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 2,800 | | | |
| Unfavorable Years | 250 | | | |

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UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--High Plains (HP-1)
Central Plains and Valleys (CP-1)

TG Section II-E

RANGE SITE - No. 38

1. RANGE SITE NAME: Clayey Upland (HP-1, CP-1)

2. CLIMATE:

- a. Annual precipitation averages from 15 to 18 inches. Approximately three-fourths of the annual average occurs during the period April to October inclusive. July and August most commonly receive the highest monthly totals. There are extreme fluctuations from year to year with periodic droughts that have lasted as long as 4 years. Annual rainfall in the area has fluctuated from a high of 37.65 inches to a low of 5.54 inches in a 10 year period. Summer rainfall is characterized by torrential thunder-showers producing high runoff from unprotected soils. Winter precipitation, which averages about 1/2 inch per month, usually occurs in the form of snow.
- b. Wind velocities for the area are high, averaging about 4.5 miles per hour on an annual basis. Spring windstorms occur frequently, with velocities in excess of 45 miles per hour, causing severe wind erosion on soils inadequately protected by vegetation. Humidity is low and evaporation high, averaging 60 inches or more during the period April through October.
- c. The frost free season ranges from about 135 days at the higher elevations to about 165 days at lower elevations. The principal growing season for native plants occurs from May 15 to September 15 if sufficient moisture is available. Sub zero temperatures will usually occur every year, with minimums of -20°F not uncommon. Summers are characterized by warm days and cool nights, with maximum temperatures seldom reaching 100°F. The percentage of sunshine is high, averaging about 80 percent of the possible amount.

3. TOPOGRAPHY AND ELEVATIONS:

This site occurs on level to gently sloping areas of Plains Upland at elevations ranging from approximately 5,000 feet to about 7,200 feet. Slopes usually range from less than 1 to approximately 5 percent with the majority of the site occurring on slopes of less than 3 percent.

4. SOILS:

- a. The soils of this site are deep to moderately deep, with moderately fine to fine surface textures. The subsoils range from moderately fine to fine textured, and are moderately to slowly permeable. This group of soils have excellent water-holding capacity but take water slowly. When adequate plant cover and residues are present, infiltration is much more rapid. Where good cover and adequate plant residues are lacking, the soils of this site usually develop an impervious, dispersed surface condition which decreases their low infiltration rate. Maintenance of a good plant cover and adequate plant residues is extremely important on this site. When the natural cover of this site is impaired it is extremely slow to recover. The site is one of the most difficult to reseed.
- b. Significant soil series of the Clayey Upland Range site are:
- | | |
|-------------------------------|--------------------|
| Labrier clay loam | Manwood clay loam |
| Paiso (like) clay loam | Ordway clay loam |
| Pullman clay loam | Renchill clay loam |
| Pullman clay loam, thin solum | Colmor clay loam |
| | Swastika clay |
- c. Complete descriptions of these soils can be found in the Legend for Standard Soil Surveys in Colfax and Harding Counties.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Western wheat grass
Alkali sacaton
Vine mesquite
Plains muhly
Winter fat
Four wing saltbush

Increasers

Blue grama
Galleta
Buffalo grass
Creeping muhly
Ring muhly
Wolf berry

Invaders

Three-awns
Texas tumblegrass
Sleepy grass
Prickly pear
Snakeweed
Fringed sage
Gumweed
Poverty sumpweed
Ragweed

- b. Western wheatgrass, alkali sacaton, and vine mesquite grass are the principal decreasing species on this site. Blue grama, buffalo grass, galleta grass, and creeping muhly are the principal increasing grass

5. POTENTIAL VEGETATION: (continued)

species. Few woody plants are indigenous to this site. The ones most commonly found are four-winged salt bush (chamise) and wolf berry (*Lycium pallidum*). Under intensive use four-winged saltbush decreases and wolfberry increases, however, it is seldom abundant enough to be of consequence. In excellent condition western wheatgrass and alkali sacaton should provide more than half of the total forage production with blue grama, galleta, buffalo grass, and vine mesquite providing most of the remainder.

c. Yields: Pounds of air dry forage per acre based on limited clipping data. Favorable years 3,000 pounds per acre.

d. Ground cover: Optimum density approximately 40 percent.

6. SPECIFIC TYPE LOCATION:

Sec. 31, T 29N, R 28E, NMPM.

RANGE CONDITION GUIDE

#38

Range Site Name Clayey Upland (HP-1, CP-1)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|---------------------------------------|-----------|-------------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 2 | Western wheatgrass | Blue grama | 30 | Three-awns |
| 3 | Alkali sacaton | Galleta | 15 | Texas tumblegrass |
| 4 | Vine mesquite | Buffalo grass | 10 | Sleepygrass |
| 5 | Plains muhly | Creeping muhly | T | Broom snakeweed |
| 5 | Common winterfat | Ring muhly | T | Fringed sagebush |
| 5 | Fourwing saltbush | Wolfberry | T | Gumweed |
| | | Cholla cactus | T | Poverty sumpweed |
| | | Prickly pear | T | Ragweed |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 40 | 40 | 25 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 3,000 | | | |
| Unfavorable Years | 1,500 | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Central Plains and Valleys (CP-3)

TG Section II-E

RANGE SITE - No. 41

1. RANGE SITE NAME: Clayey Upland (CP-3)

2. CLIMATE:

- a. Annual amounts of precipitation may vary from about 5 inches to 23 inches with the average approximating 14 inches. During some years heavy snows are received which may remain on the ground for several weeks and inhibit use of the range by livestock. Extremes in annual precipitation usually result in great variation in forage produced thus necessitating livestock use adjustments in order to achieve proper use. Although growth of some forage starts almost with the snow melt, only limited amounts of green forage are available until April. Fall growth of cool season growers commences soon after September if moisture is received.
- b. Main growing period is from May to September when ordinarily summer showers in the form of thunderstorms occur simultaneously with the highest recorded temperatures. Spring winds may be detrimental to this site where ground cover has thinned out and surface soil is silty. Wind damage, however, is dependent upon moisture conditions.
- c. Winter temperatures may drop to -20°F or -30°F in extreme cases, thus limiting the presence of some warm season grasses. Summer temperatures range in the high 90's and may attain 105°F as an extreme.

3. TOPOGRAPHY AND ELEVATIONS:

This site is found on level to undulating terrain with slopes of less than 10 percent. Elevational range is from 6,000 to 7,200 feet.

4. SOILS:

- a. Soils of this site are moderately fine to fine textured on the surface, moderately deep to deep with varying textured subsoils. Water intake rates are low but these soils ordinarily possess a high waterholding capacity.
- b. Soils found on this site include the following:

Wilcoxson clay loam
Mestano clay loam

RANGE SITE - No. 41

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Alkali sacaton
Western wheatgrass
Spike muhly
Indian ricegrass
Vine mesquite
Winterfat
Chamise
Needle & threadgrass
Sideoats grama
Squirreltail
Junegrass
Little bluestem

Increasers

Blue grama
Buffalo grass
Mat muhly
Wiregrass
Galleta
Three-awn
Ring muhly
Snakeweed
Sand dropseed
Fringed sage

Invaders

Rabbitbrush
Yucca
Prickly pear
Cholla

- b. Main grasses found on this site are spike muhly, alkali sacaton, western wheatgrass, Indian ricegrass, galleta, vine mesquite, blue grama, and buffalo grass. Small percentages of sand, mesa and spike dropseed are present as well as limited amounts of chamiza and winterfat. Mat muhly, buffalo grass and wire grass are present as increaser species in small amounts, but percentage composition of these species increases markedly with over-use of the taller, more palatable overstory species.
- c. Winterfat and chamise ordinarily do not exceed 25 percent of the total plant composition in excellent condition. Tree species are ordinarily not found on this site.
- d. Annual herbage production from this site varies from _____ pounds per acre in favorable years to _____ pounds in less favorable years.
- e. Approximately one-third of the ground surface is protected by a living vegetative cover and interspaces between grass clumps are partially protected by litter. A good representation of age classes of the dominant decreaser species is in evidence. Blue grama may assume a turf habit of growth under continued heavy use and when buffalo grass also is present a very heavy ground cover may be present. This condition results in a lower production for the site.

6. SPECIFIC TYPE LOCATION:

Extreme south side of McKee Ranch, between Galisteo and breaks north of Stanley, New Mexico.

RANGE CONDITION GUIDE

#41

Range Site Name Clayey Upland (CP-3)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|--------------------------|------------------------------------|------------|--------------|
| | (Count all percent) | (Count no more than percent shown) | By. Wt. | (Count None) |
| 1 | Alkali sacaton | Blue grama | 50 | Rabbitbrush |
| 3 | Western wheatgrass | Buffalo grass | 10 | Yucca |
| 4 | Spike muhly | Mat muhly | T | Prickly pear |
| 5 | Indian ricegrass | Wire grass | 5 | Cholla |
| 3 | Vine-mesquite | Galleta | 15 | |
| 4 | Winter fat | Three-awns | 5 | |
| 2 | Chamiza | Ring muhly | T | |
| 5 | Needle and thread | Snakeweed | T | |
| 5 | Sideoats grama | Sand dropseed | 5 | |
| 5 | Bottlebrush squirreltail | Fringed Sage | T | |
| 5 | Prairie junegrass | Other forbs | 5 | |
| 5 | Little bluestem | Other shrubs | 5 | |

Maximum total percent 50

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 35 | 30 | 20 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Northern Desert Valleys and Mesas (ND)

TG Section II E

RANGE SITE - No. 42

1. RANGE SITE NAME: Clayey Upland (ND)

2. CLIMATE:

- a. The average annual rainfall in the Northern Desert Land Resource Area is 10 inches. Some recordings are as low as 6.76 inches annually in the San Juan Valley. Approximately one-third of these amounts fall in the form of winter snow from December through March. Intense summer thunder showers are common throughout the District during July, August, and September when average amounts for this season equal 3 to 4 inches. The frost-free period of the year is ordinarily late spring (May-June) to fall (Oct.-Nov.).
- b. Spring winds contribute to zeric conditions over most of the district.
- c. The principal growing season on this site is during the summer months when precipitation amounts and temperatures are optimum for grama. In the elevations above 6,500 feet, cool season growers make a considerable production during March and April; and after a dormant summer season, will make some growth in the fall (Oct.-Nov.). Frost-free periods range from about 140 days in the higher portion of the district to 163 days in the lower portion. These periods extend from May 8 and May 22 to October 9 and October 18.

3. TOPOGRAPHY AND ELEVATION:

- a. This site occurs within the Northern Desert Land Resource Area on the open, flat to moderately sloping areas. Maximum slope for this site is ten percent. Elevation varies from 5,000 feet to 7,000 feet. At the lower elevations in the site, the salt-tolerant plants begin to become more numerous on the flatter areas. The site includes all exposures. The various exposures will support different amounts of vegetation giving the site a complex effect. The complex site areas such as north and south slopes will be mapped as one site. The slope may be broken or irregular. Excessive small gullies and main water courses are common to the site when in poor range condition.

4. SOILS:

- a. These clayey soils are deep to moderately deep. Surface texture is heavy with a slow intake of water. In high rainfall periods over a short period of time, runoff is fast resulting in erosion, forming V type gullies if the vegetative cover is sparse. The surface tends to crust and seal over reducing the moisture intake rate.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Unnamed soils

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Alkali sacaton
Bluestem (western) wheatgrass
Indian ricegrass
Galleta
Blue grama
Chamiza

Increasers

Mat muhly
Poverty threeawn
Ring muhly
Foxtail barley
Big sagebrush
Broom snakeweed
Greasewood
Rubber rabbitbrush

Invaders

Pingue
Loco spp.

- b. The decreaseers make up 70 percent of the vegetation and the remainder is increasers.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- c. Basal herbage covers 30 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#42

Range Site Name Clayey Upland (ND)

| Rating | Decreasers (Count all %) | Increasers (Count no more than % shown) | Max. % By Wt. | Invaders (Count none) |
|--------|----------------------------------|-----------------------------------------------|------------------------|--------------------------|
| 1 | Alkali sacaton | Mat muhly | 5 | Pingue |
| 1 | Bluestem (western) wheatgrass | Ring muhly | 5 | Loco |
| 5 | Indian ricegrass | Foxtail barley | T | |
| 4 | Galleta | Big sagebrush | 10 | |
| 5 | Blue grama | Broomsnakeweed | T | |
| 4 | Chamiza | Greasewood | T | |
| | | Poverty threeawn | 5 | |
| | | Rubber rabbitbrush | 5 | |

| | |
|-----------------------|----|
| Maximum total percent | 30 |
|-----------------------|----|

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 20 | 10 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Western Plateaus and Mesas (WP-1)

TG Section II E

RANGE SITE - No. 43

1. RANGE SITE NAME: Clayey Upland (WP-1)

2. CLIMATE:

- a. Precipitation varies from less than 10 inches in small areas to 13 inches at the higher elevations adjacent to the lower elevations of the Mountain Range Sites and Hills. Approximately one-half of the moisture occurs in the form of high intensity thunder showers over a short period of time. The high intensity rainfall period is the summer months of July, August, and September. Runoff may be excessive on the sites in the poorer range condition classes. Snowfall throughout the winter months accounts for the remaining moisture. Early and late winter moisture in the form of light rain occurs some years, but contributes little to the moisture supply.
- b. Southwest winds are common in the early spring, melting winter snow accumulations and evaporating soil moisture before the growing season starts.
- c. The growing season is about 140 days with 110 days frost-free from about June 1 to September 30. Low rainfall years will result in early killing frost in the fall. Years of higher rainfall in the late fall will delay the frost resulting in a longer growing season.

3. TOPOGRAPHY AND ELEVATION:

- a. The site occurs at elevations from 5,000 to 7,000 feet. Mountain sites, hills, and breaks join this site at the higher elevations.
- b. Although the dominant slope is around 3 percent, the topography may be broken, rolling, undulating, and cut by arroyos. Other sites such as hills may occur interspersed with this site.

4. SOILS:

- a. Soils are deep to moderately deep clays and clay loams. Swelling and shrinking usually makes initial intake rates very rapid, but prolonged rains cause the cracks to swell and results in high runoff. Deep, vertical gullies are very common when vegetative cover is sparse. Saline and alkaline conditions are often associated with these soils.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Las Lucas clay loam

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Alkali sacaton
Blue grama
Indian ricegrass
Bluestem (western) wheat-
grass
Common winterfat
Galleta

Increasers

Poverty threeawn
Shadscale
Rubber rabbitbrush
Broom snakeweed
Fluffgrass
Mat muhly

Invaders

Pingue
Loco
Lupine

- b. The decreaseers make up 75 percent of the vegetation and the remainder is increasers.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 30 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#43

Range Site Name Clayey Upland (WP-1)

| Rating | Decreasers (Count all %) | Increasers (Count no more than % shown) | Max. % By Wt. | Invaders (Count none) |
|--------|-----------------------------|-----------------------------------------------|------------------------|--------------------------|
| 1 | Alkali sacaton | Poverty threeawn | T | Pingue |
| 2 | Blue grama | Shadscale | 5 | Loco |
| 4 | Indian ricegrass | Snakeweed | 5 | Lupine |
| 4 | Bluestem (western) | Fluffgrass | 5 | |
| | wheatgrass | Mat muhly | 5 | |
| 2 | Galleta | Rubber rabbitbrush | 5 | |
| 5 | Common winterfat | | | |

Maximum total percent 25

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 20 | 10 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

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R.A.A.

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Western Plateaus and Mesas (WP-2)

TG Section II E

RANGE SITE - No. 44

1. RANGE SITE NAME: Clayey Upland (WP-2)

2. CLIMATE:

- a. Precipitation varies from 10 inches at Crownpoint to 14 inches at Quemado and Bluewater and 12 inches at Gallup.
- b. Wind velocities are high in this area in comparison to the rest of the United States. High wind during March and April causes much erosion and evaporation of moisture on unprotected areas.
- c. Most of the moisture occurs in July, August, and September in thunder shower type rains over a small area. Rainfall is high for a short period of time, usually resulting in high runoff on these heavy soils when vegetative cover is sparse. In some years winter snow will accumulate and melt off in the spring supplying limited early moisture for cool season growing vegetation. The growing season is about 160 days. First frost will usually occur in early September and the last killing frost in late May.

3. TOPOGRAPHY AND ELEVATION:

- a. The dominant slope for the Clayey Upland is from 1 to 5 percent slope.
- b. The site occurs at an elevation of 6,997 feet at Fort Wingate to 7,200 feet at Ramah and Barrogas Pass, 6,600 feet at Quemado, and 6,800 feet at Crownpoint.

4. SOILS:

- a. The soil is fine to moderately fine-textured. These soils are deep with high water holding capacities. The water infiltration rate is slow and runoff may be excessive. The soil has varying amounts of salt accumulation. The site is subjected to severe erosion with sparse vegetative cover.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Las Lucas clay loam
Canoncita clay loam

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Alkali sacaton
Bluestem (western) wheat-
grass
Galleta
Indian ricegrass

Increasers

Poverty threeawn
Ring muhly
Common winterfat
Rubber rabbitbrush
Broom snakeweed
Big sagebrush

Invaders

Pingue
Loco
Lupine
Whorled milkweed
Poison suckleya

- b. The decreaseers make up 70 percent of the vegetation and the remainder is increasers.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 30 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#44

Range Site Name Clayey Upland (WP-2)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|----------------------------------|------------------------------|----------------|-------------------|
| | (Count all %) | (Count no more than % shown) | % By Wt. | (Count none) |
| 1 | Alkali sacaton | Poverty threeawn | 5 | Pingue |
| 2 | Bluestem (western) wheatgrass | Ring muhly | T | Loco |
| | | Common winterfat | 5 | Lupine |
| 3 | Galleta | Rubber rabbitbrush | 10 | Whorled |
| 5 | Indian ricegrass | Broom snakeweed | T | milkweed |
| | | Big sagebrush | 10 | Poison sucklea |

Maximum total percent 30

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 20 | 10 | X |

Approximate Air-Dry Forage Yields By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Western Plateaus and Mesas (WP-3)

TG Section II-E

RANGE SITE - No. 45

1. RANGE SITE NAME: Clayey Upland (WP-3)

2. CLIMATE:

- a. Precipitation averages from 13 to 16 inches and ranges from an all time low of 5.8 inches to a record high of 31.17 inches. Approximately one-half of the precipitation occurs during the months of July, August, and September. There are extreme fluctuations from year to year with periodic drouths. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages one inch per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. High temperatures, fairly constant winds, and low humidity cause the average annual evaporation to range up to 93 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during June, July, and August. The growing season of the native warm season plants begins after the last frost, April 15 to April 28, and continues as moisture is available until October 16 to November 2, which are the average dates ending the frost free period. Winters are generally mild. Average annual temperatures range from 55°F to 60°F.

3. TOPOGRAPHY AND ELEVATION:

The topography is level to gently sloping. The average slope ranges from 0 to 3 percent, but may be as high as 10 percent. Elevations vary from 4,150 to 6,500 feet above sea level.

4. SOILS:

- a. The significant soils that characterize this site have moderately fine to medium textured surface soils overlying slowly permeable moderately fine to fine textured subsoils. Soils are developing mostly in alluvium, from various parent materials. Water intake rates are generally slow and water holding capacity is high. These soils are susceptible to wind and water erosion when unprotected by perennial vegetation.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Vekol (like), sandy clay loam

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- c. When standard soil surveys are initiated complete soil series descriptions will be available in the Soil Survey Descriptive Legend, or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|---------------------|--------------------------|------------------|
| Vine-mesquite | Threeawns | Mesquite |
| Alkali sacaton | Tobosa | American tarbush |
| Sideoats grama | Fluffgrass | Annuals |
| Blue grama | Curly mesquite | |
| Arizona cottontop | Ring muhly | |
| Plains bristlegrass | Burrograss | |
| Plains lovegrass | Bottlebrush Squirreltail | |
| Cane bluestem | Broom snake-weed | |
| Chamiza | Longleaf Ephedra | |
| Common winterfat | | |

- b. The decreaseers make up 40 percent of the vegetation and the remainder may be increasers. There may be 10 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping 700 to 1,000 pounds per acre. *
- d. Herbage covers from 20 to 25 percent of the ground.

6. SPECIFIC TYPE LOCATION:

About 1 mile north of Buckhorn in Grant County.

* Based on limited plot clippings and estimates.

RANGE CONDITION GUIDE

#45

Range Site Name Clayey Upland (WP-3)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|---------------------|------------------------------|----------------|------------------|
| | (Count all %) | (Count no more than % shown) | % By Wt. | (Count None) |
| 1 | Blue grama | Ring muhly | 5 | Mesquite |
| 2 | Sideoats grama | Bottlebrush | | American tarbush |
| 3 | Alkali sacaton | Squirreltail | 5 | Annuals |
| 4 | Vine-mesquite | Threeawns | 10 | |
| 4 | Arizona cottontop | Curly mesquite | 15 | |
| 4 | Plains lovegrass | Tobosa | 30 | |
| 4 | Cane bluestem | Creeping muhly | T | |
| 4 | Chamiza | Fluffgrass | T | |
| 4 | Common winterfat | Burrograss | T | |
| 5 | Plains bristlegrass | Broom snakeweed | T | |
| | | Longleaf Ephedra | T | |
| | | Cactus | T | |
| | | Loco | T | |
| | | Soaptree yucca | T | |

Maximum total percent 60

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 20 | 15 | 10 | Any |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 700 | | | |
| Unfavorable Years | | | | |

6-7-62

I.W.D.

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-1)

TG Section II-E

RANGE SITE - No. 46

1. RANGE SITE NAME: Clayey Upland (SD-1)

2. CLIMATE:

- a. Principal growing season is during the period July 1 to September 30 although during some years production of annuals may be high in the spring months, starting in late March or early April. Total annual precipitation may vary from 3.78 inches to over 16 inches, with the average annual amount being calculated at 8.4 inches, 45 percent of which is received during the summer growing season. Winter moisture is quite variable, ranging from little snow or rain to years in which over 12 inches of snow may be recorded. Although the two driest months are January and February, June with an average precipitation total of .65 is perhaps the most critical for seedling establishment because of the added drying effect of high daytime temperatures.
- b. Temperatures range from sub-zero to the high 90's with the maximum being registered during the month of July or August. Frost-free period extends from April 20 to October 20 for a growing season of 183 days. Spring winds are commonplace from February through June. These winds, reaching peak gusts of over 60 miles per hour may seriously influence native vegetative cover. Shifting topsoil may expose grass and shrub roots, remove litter and perennial and annual cover, and cause excessive accumulations over existant plant cover. The drying effect of continuous blowing is also a factor.

3. TOPOGRAPHY AND ELEVATIONS:

This site is found on level to undulating terrain with slopes up to 10 percent. Relief may be somewhat choppy near upper limits of River Breaks site. Elevation range is 4,800 feet in the Rio Grande Valley to 5,800 feet in the lower plateaus. The site occupies an upland position.

4. SOILS:

- a. Soils are heavy textured in the surface with variable textures in the subsoil and substratum. Surface textures may vary from silty clay loam to clay. Soils are ordinarily deep. Intake rates are low and surface soils may become quite crusty and platy in the surface few inches.

RANGE SITE - No. 46

4. SOILS: (continued)

b. Soils include the following:

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Alkali sacaton
Vine mesquite
Blue grama
Cane beardgrass
Western wheatgrass
Bottlebrush squirreltail
Sideoats grama
Winterfat
Chamise
Porter's muhly

Increasers

Tobosa
Galleta
Three-awn
Ring muhly
Burro grass
Snakeweed
Wiregrass
Tarbush

Invaders

Rabbitbrush
Mesquite
Creosote bush
Allthorn
Cholla
Prickly pear
Yucca

b. Potential vegetation on this site consists of a mixture of the following grasses: Alkali sacaton, vine mesquite, blue grama, cane beardgrass, tobosa, galleta, western wheatgrass, and bottlebrush squirreltail. Alkali sacaton is the dominant species. Grasses will make up at least 80 percent of the total plant composition with the following increasers or invaders being present in lesser amounts: Burro grass, three-awn, ring grass, yucca, cholla, prickly pear, snakeweed, and rabbitbrush. Chamise and winterfat are decreaseers commonly occurring on this site in amounts up to 20 percent.

c. Annual herbage yields on this site vary from _____ pounds per acre to _____ pounds.

d. Density of ground cover is 30 percent to 35 percent.

6. SPECIFIC TYPE LOCATION:

Huning ranch near Commanche Draw, near Tokay, New Mexico.

RANGE CONDITION GUIDE

#46

Range Site Name Clayey Upland (SD-1)

| Rating | Decreasers | Increasers | Max. % By. Wt. | Invaders |
|--------|--------------------------|---------------------------------------|-------------------------|---------------|
| | (Count all percent) | (Count no more than percent shown) | | (Count None) |
| 1 | Alkali sacaton | Galleta) | 25 | Rabbitbrush |
| 2 | Vine-mesquite | Tobosa) | | Mesquite |
| 4 | Blue grama | Three-awn | 5 | Creosote bush |
| 4 | Cane beardgrass | Ring muhly | 1 | All thorn |
| 4 | Western wheatgrass | Burrograss | 10 | Cholla |
| 5 | Bottlebrush squirreltail | Snakeweed | 5 | Prickly pear |
| 4 | Sideoats grama | Other shrubs | 5 | Yucca |
| 4 | Winterfat | | | |
| 3 | Chamiza | | | |
| 4 | Bush muhly | | | |

Maximum total percent 45

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 25 | 20 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-2)

TG Section II-E

RANGE SITE - No. 47

1. RANGE SITE NAME: Clayey Upland (SD-2)

2. CLIMATE:

- a. Precipitation averages from 8 to 12 inches and ranges from an all time low of 2.9 inches to a record high of 25.7 inches. The greater part occurs during the months of July, August, and September. There are extreme fluctuations from year to year, with periodic droughts. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages less than half an inch per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. These high winds in March, April, and May cause extensive erosion on unprotected soils. High temperatures, fairly constant winds, and low humidity cause the average annual evaporation to range up to 107 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during July, August, and September. The growing season of the native warm season plants begins after the last frost, March 29 to April 23, and continues as moisture is available until October 15 to November 12, which are the average dates ending the frost free period. Winters are generally mild, however, there is a recorded low of -10°F . The maximum summer temperature on record is 110°F . Average annual temperatures range from 58°F to 60°F .

3. TOPOGRAPHY AND ELEVATIONS:

This site lies from 4,000 to 5,500 feet elevation. The site occurs on undulating to flat topography, occasionally broken by Stony Hills site, arroyos, dry lake beds, and Bottomland sites. In an eroded condition, stock movement may be hampered by vertical sided gullies.

4. SOILS:

- a. The soils are heavy textured with slow intake rates. Depth of the soils are 20 inches or more. Slopes vary from 0 to about 3 percent. Water holding capacity is high. Erosion is a problem where vegetative cover is broken or thin. Revegetation is difficult.

RANGE SITE - No. 47

4. SOILS: (continued)

- b. The significant soils in this site may include one or more of the following soils:

SERIES, TYPES, AND PHASES

Gauthier silty clay loam
Antelope springs (like) silty clay loam
* Gauthier silt loam
Mohave silt loam
Vekol silt loam
Vekol sandy clay loam
Karo silt loam
Pinal silty clay loam
Mimbres silty clay loam
Vekol clay loam

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legend, or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Alkali sacaton
Black grama
Bush muhly
Sideoats grama
Vine-mesquite
Blue grama
Sacaton
Arizona cottontop
Plains bristlegrass

Increasers

Tobosa
Threeawns
Burrograss
Fluffgrass
Sand dropseed
Whiplash pappus grass
Common winterfat
Chamiza
Condalia
Spiny allthorn
American tarbush
Cactus
Wolfberry
Loco
Senna

Invaders

Mesquite
Creosotebush

* Field names

RANGE SITE - No. 47

5. POTENTIAL VEGETATION: (continued)

- b. The decreasers make up 45 percent of the vegetation and the remainder may be increasers. There may be 10 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is 500 to 750 pounds per acre. *
- d. Herbage covers 15 to 20 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

West of Deming in NE 1/4 Sec. 11, T 34S, R 10W, Luna County.
Nutt vicinity on Joe Bain Ranch adjoining cropland.
Near the NE corner of Sec. 16, T 22S, R 7W, Luna County, NW 1/2 Sec. 23,
T 18S, R 9E, approximately 1 mile south of Valmont, Otero County.
West of Lordsburg, in Sec. 9, T 21S, R 19W, Hidalgo County.

* Based on limited plot clippings and estimates.

RANGE CONDITION GUIDE

#47

Range Site Name Clayey Upland (SD-2)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|---------------------------------------|-----------|--------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 2 | Alkali sacaton | Burrograss | 5 | Mesquite |
| 3 | Black grama | Threeawns | 5 | Creosotebush |
| 3 | Bush muhly | Common winterfat | 10 | |
| 4 | Sideoats grama | Chamiza | 10 | |
| 4 | Vine-mesquite | Tobosa | 35 | |
| 4 | Blue grama | Fluffgrass | T | |
| 5 | Plains bristlegrass | Sand dropseed | T | |
| 5 | Sacaton | Condalia | T | |
| 5 | Arizona cottontop | Spiny allthorn | T | |
| | | American tarbush | T | |
| | | Loco | T | |
| | | Cactus | T | |
| | | Whiplash Pappusgrass | T | |
| | | Wolfberry | T | |
| | | Senna | T | |

Maximum total percent 55

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 15 | 10 | 5 | Any |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 500 | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-3)

TG Section II-E

RANGE SITE - No. 48

1. RANGE SITE NAME: Clayey Upland (SD-3)

2. CLIMATE:

- a. Arid to semi-arid climate with an annual precipitation for this resource area averaging from 11 to 15 inches. The wettest year on record was at Ft. Sumner (41.37 inches) and the driest year was at Carlsbad (2.95 inches). Approximately 75 percent of the annual rainfall occurs from May to October inclusive. June, July, August, and September are normally the months of highest rainfall. Summer rainfall is characterized by torrential thundershowers of high intensity and short duration that produce high runoff from unprotected soils. There are extreme fluctuations in the amount of precipitation from year to year, and periodic droughts have occurred, some lasting for 4 years or longer. More years of below average rainfall can be expected than those above the average precipitation. Winter moisture may occur in the form of rain and/or snow and usually averages less than half an inch per month. When snow occurs it melts quickly and snow cover persisting as long as one week is unusual.
- b. Wind velocities in this area are high. February, March, April, and May are characterized by frequent wind storms with velocities in excess of 50 miles per hour, causing severe wind erosion on soils unprotected by adequate vegetation. Humidity is low and evaporation is high, averaging from 70 to 85 inches to in excess of 120 inches (from an evaporation pan).
- c. The frost free season of this sub-area ranges from about 187 days at Ft. Sumner in the northern part to 228 days at Carlsbad Caverns in the southern part. The growing season of the native warm season plants begins after the last frost, April 2 to 19 (South to North) and continues as moisture is available until the latter part of October or the first of November, ending the frost free period. Winters are characteristically warm and open, with occasional "northers" dropping the temperature to 0°F or lower for short periods of time in about 1/3 of the years on record. Occasional and infrequent temperatures as low as -30°F have occurred. Summers are hot with temperatures of over 105°F occurring frequently from May through September. The annual average temperature varies from 59°F at Roswell to 63°F at Carlsbad.

3. TOPOGRAPHY AND ELEVATIONS:

The topography is level to gently undulating. It is frequently broken by narrow bottomland sites and dry lake beds and may be intermixed with Loamy Upland, Shallow Upland, or Loamy Bottomland sites. The dominant slopes for this site are from 1 to 3 percent. Elevation ranges from 3,100 feet around Jal and Carlsbad areas to 4,200 feet around the Ft. Sumner area. Areas around Lulu, Cornudas Mountains, and small isolated places in the resource area may be up to 5,000 feet in elevation.

4. SOILS:

- a. The significant soils which characterize this site are silt loams, silty clay loams, and clay loams 10 inches or more in depth. Water intake rates are generally slow and moisture holding capacity is high. Intake rates on the silty soils may be very restricted if vegetative cover is sparse. These soils are usually calcareous to the surface. This site is subject to severe erosion from wind and water. Vertical sided gullies frequently form on this site when eroded, hampering livestock movement.
- b. The significant soils in this site may include one or more of the following sites:

SERIES, TYPES, AND PHASES

Hassell (like) clay loam
Russler silt loam
Quay clay loam

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legends or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Alkali sacaton
Blue grama
Sideoats grama
Vine-mesquite
Cane bluestem
Bottlebrush squirreltail

Increasers

Tobosa
Buffalograss
Threeawns
Fluffgrass
Burrograss
Sand dropseed

Invaders

Broom snakeweed
Groundsel
Mesquite
Annuals

RANGE SITE - No. 48

5. POTENTIAL VEGETATION: (continued)

Decreasers

Increasers

Invaders

Silver bluestem
Prairie zinnia
Loco
Globe mallow
Prickly pear
Common winterfat
Condalia

The decreaseers make up 50 to 60 percent of the vegetation and the remainder is increasers.

- b. The potential vegetation is alkali sacaton, blue grama, sideoats grama, vine-mesquite, and cane bluestem. Tobosa, buffalograss, threeawns, sand dropseed, and burrograss, together with browse species like common winterfat and condalia, may make up the remainder. Forbs may make up 5 percent of the cover.
- c. Annual herbage yields based on plot clippings vary from 2,200 pounds per acre in favorable years to 300 pounds per acre in less favorable years when the site is in excellent condition. *
- d. Basal herbage covers 15 to 20 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

Center of Sec. 36, T 7S, R 28E, in Chaves County.

* Based on limited clipping data and estimates.

RANGE CONDITION GUIDE

#48

Range Site Name Clayey Upland (SD-3)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|--------------------------|------------------------------------|----------------|-----------------|
| | (Count all percent) | (Count no more than percent shown) | % By Wt. | (Count None) |
| 1 | Alkali sacaton | Tobosa | 25 | Broom snakeweed |
| 3 | Blue grama | Buffalograss | 10 | Groundsel |
| 3 | Vine-mesquite | Threeawns | 10 | Mesquite |
| 4 | Sideoats grama | Common winter fat | 10 | Annuals |
| 5 | Cane bluestem | Burrograss | 5 | |
| 5 | Bottlebrush squirreltail | Sand dropseed | 5 | |
| | | Silver bluestem | 5 | |
| | | Fluffgrass | T | |
| | | Prairie zinnia | T | |
| | | Loco | T | |
| | | Globe mallow | T | |
| | | Pricklypear | T | |
| | | Condalia | T | |

Maximum total percent 50

| Percent by Weight of Potential Vegetation | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Minimum Percent Density | 76-100 | 51-75 | 50-26 | 0-25 |
| | 30 | 30 | 20 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 2,200 | | | |
| Unfavorable Years | 300 | | | |

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UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-4)

TG Section II-E

RANGE SITE - No. 49

1. RANGE SITE NAME: Clayey Upland (SD-4)

2. CLIMATE:

- a. Precipitation averages from 13 to 21 inches and ranges from an all time low of 9.8 inches to a record high of 29 inches. Approximately one-half of the precipitation occurs during the months of July, August, and September. There are extreme fluctuations from year to year, with periodic droughts. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages 1.5 inches per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. High temperatures, fairly constant winds, and low humidity causes the average annual evaporation to range up to 90 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during July, August, and September. The growing season of the native warm season plants begins after the last frost, April 29 and continues as sufficient moisture is available until October 27 which is the average date ending the frost free period. Winters are generally mild. Average annual temperature is 57°F.

3. TOPOGRAPHY AND ELEVATIONS:

The topography is level to gently sloping. Average slope is 0 to 3 percent. Elevations range from 5,000 to 6,500 feet elevation.

4. SOILS:

- a. The significant soils that characterize this site are heavy clay and clay loams with some gravelly clays and silty clay loams. They are deep and slowly permeable. Erodibility is high when the perennial cover is depleted. Soils are dark colored and generally derived from igneous parent material. Water holding capacity of these soils is high.
- b. The significant soils in this site may include one or more of the following:

RANGE SITE - No. 49

4. SOILS: (continued)

SERIES, TYPES, AND PHASES

Unnamed soils.

- c. As the standard soil survey progresses, complete soil survey descriptions will be available in the Soil Survey Descriptive Legend or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|-------------------|--------------------------|-----------------|
| Blue grama | Threeawns | Mesquite |
| Sideoats grama | Buffalograss | Annuals |
| Vine mesquite | Tobosa | |
| Black grama | Creeping muhly | |
| Cane bluestem | Ring muhly | |
| Arizona cottontop | Burrograss | |
| Plains lovegrass | Bottlebrush squirreltail | |
| Green sprangletop | Wavyleaf thistle | |
| | Threadleaf grounsel | |
| | Deer vetch | |
| | Wright Eriogonum | |
| | Broom snakeweed | |
| | Cactus | |
| | Loco | |

- b. The decreaseers make up 50 percent of the vegetation and the remainder may be increasers.
- c. Total herbage yields in pounds, air dry, per acre in favorable or less favorable years, based on plot clippings and weights, vary from 900 to 1,250. *
- d. Good coverage in potential condition should range from 20 to 25 percent.

6. SPECIFIC TYPE LOCATION:

The type location of this site is along the Cloverdale Highway, Sec. 34, T 32S, R 20W on the DiamordA Ranch in Hidalgo County.

* Based on limited clipping and estimates.

RANGE CONDITION GUIDE

#49

Range Site Name Clayey Upland (SD-4)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|---------------------|------------------------------------|----------------|--------------|
| | (Count all percent) | (Count no more than percent shown) | % By Wt. | (Count None) |
| 1 | Blue grama | Creeping muhly | 5 | Mesquite |
| 1 | Black grama | Bottlebrush squirreltail | 5 | Annuals |
| 2 | Sideoats grama | Deer vetch | 5 | |
| 3 | Plains lovegrass | Wright Eriogonum | 5 | |
| 4 | Vine-mesquite | Threeawns | 15 | |
| 4 | Cane bluestem | Buffalograss | 20 | |
| 4 | Arizona cottontop | Tobosa | 40 | |
| 5 | Green sprangletop | Ring muhly | T | |
| | | Burrograss | T | |
| | | Wavyleaf thistle | T | |
| | | Threadleaf groundsel | T | |
| | | Broom snakeweed | T | |
| | | Cactus | T | |
| | | Loco | T | |

Maximum total percent 50

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 20 | 15 | 10 | Any |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 900 | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--High Plains (HP-3)

TG Section II-E

RANGE SITE - No. 50

1. RANGE SITE NAME: Limey Upland (HP-3)

2. CLIMATE:

- a. Annual precipitation for this area ranges from approximately 14 to 18 inches. Approximately 70 percent of this amount falls during April to October inclusive. July, August, and September are the months of highest rainfall. Summer rainfall is characterized by torrential thundershowers of high intensity and short duration that produce high runoff from unprotected soils. There are wide fluctuations in the amount of precipitation from year to year, and recurrent droughts have occurred, some lasting for 4 years or longer. Winter moisture may occur as either rain or snow, and usually averages less than 1/2 inch per month. When snow occurs it melts quickly and snow cover persisting as long as 1 week is unusual.
- b. Wind velocities in this area are high. The spring months are characterized by frequent wind storms with velocities in excess of 45 miles per hour causing severe wind erosion on soils unprotected by adequate vegetation. Humidity is low and evaporation is high, averaging from 75 to in excess of 100 inches.
- c. The frost free season of this sub-area ranges from about 185 days in the north to 215 days in the south. Nocturnal temperatures and length of season are adequate for the growth of cotton where edaphic conditions are favorable and irrigation water is available. Principal grasses of this area are warm season species. The principal growing season is during the late summer and early fall, depending on the availability of moisture. Winters are characteristically warm and open with occasional "northers" dropping the temperature to 0°F or lower for short periods of time in about one-third of the years of record. Occasionally temperatures as low as -25°F have occurred. Summers are hot with temperatures of over 100°F occurring frequently from May through September. The amount of sunshine is high, averaging in excess of 80 percent of the possible amount in most years.

3. TOPOGRAPHY AND ELEVATIONS:

This site occurs intermittently throughout the resource area, usually on the leeward side of intermittent lakes. It is usually slightly elevated above the surrounding plains and is in effect a large low dune formed by

RANGE SITE - No. 50

3. TOPOGRAPHY AND ELEVATIONS: (continued)

deposition of wind-blown material from the bare surface of the contributing lake floor. Elevations above sea level may range from about 3,000 feet upward to approximately 4,800 feet.

4. SOILS:

a. The soils of this site are calcareous on the surface and throughout their profile. When denuded of vegetation they are highly susceptible to wind erosion and difficult to reseed. This site, because of the inherent susceptibility to wind erosion, requires extremely careful management.

b. Significant soils of this site are:

Arch loam

Drake loam

Arch fine sandy loam

Drake fine sandy loam

c. Complete soil series descriptions of this site may be found in the legend for the Standard Soil Surveys in Chaves, Curry, Lea, and Roosevelt Counties, and the Southwest Quay area.

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Little bluestem
Sideoats grama
Black grama
Alkali sacaton
Chamise

Increasers

Blue grama
Sand dropseed
Tobosa
Three-awns
Silver bluestem
Inland salt grass
Yucca

Invaders

Buffalo grass
Sand muhly
Mat muhly
Red lovegrass
Tumbling lovegrass
Mesquite

b. In climax condition this site is usually dominated by a mid grass association. Important species are sideoats grama, little bluestem, alkali sacaton, silverbeard, black grama, blue grama, and hairy grama. Woody plants commonly found on this site are chamise and yucca. Approximately 50 percent of the vegetation should be decreaser species.

c. Yields: Adequate data is lacking.

d. Cover: 30 to 35 percent.

TG Section II-E

RANGE SITE - No. 50

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#50

Range Site Name Limey Upland (HP-3)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|---------------------------------------|-----------|--------------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 2 | Little bluestem | Blue grama | 40 | Buffalo grass |
| 2 | Sideoats grama | Sand dropseed | 25 | Sand muhly |
| 2 | Alkali sacaton | Tobosa | 15 | Mat muhly |
| 4 | Black grama | Silver bluestem | 15 | Red lovegrass |
| 4 | Fourwing saltbush | Inland saltgrass | 5 | Tumbling lovegrass |
| 5 | Winterfat | Small soapweed | 5 | Mesquite |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 30 | 20 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-3)

TG Section II-E

RANGE SITE - No. 50a

1. RANGE SITE NAME: Limey Upland (SD-3)

2. CLIMATE:

- a. Arid to semi-arid climate with an annual precipitation for this resource area averaging from 11 to 15 inches. The wettest year on record was at Ft. Sumner (41.37 inches) and the driest year was at Carlsbad (2.95 inches). Approximately 75 percent of the annual rainfall occurs from May to October inclusive. June, July, August, and September are normally the months of highest rainfall. Summer rainfall is characterized by torrential thundershowers of high intensity and short duration that produce high runoff from unprotected soils. There are extreme fluctuations in the amount of precipitation from year to year, and periodic droughts have occurred, some lasting for 4 years or longer. More years of below average rainfall can be expected than those above the average precipitation. Winter moisture may occur in the form of rain and/or snow and usually averages less than half an inch per month. When snow occurs it melts quickly and snow cover persisting as long as 1 week is unusual.
- b. Wind velocities in this area are high. February, March, April, and May are characterized by frequent wind storms with velocities in excess of 50 miles per hour, causing severe wind erosion on soils unprotected by adequate vegetation. Humidity is low and evaporation is high, averaging from 70 to 85 inches to in excess of 120 inches (from an evaporation pan).
- c. The frost free season of this sub-area ranges from about 187 days at Ft. Sumner in the northern part to 228 days at Carlsbad Caverns in the southern part. The growing season of the native warm season plants begins after the last frost, April 2 to 19 (South to North) and continues as moisture is available until the latter part of October or the first of November ending the frost free period. Winters are characteristically warm and open with occasional "northers" dropping the temperature to 0°F or lower for short periods of time in about 1/3 of the years on record. Occasional and infrequent temperatures as low as -30°F have occurred. Summers are hot with temperatures of over 105°F occurring frequently from May through September. The annual average temperature varies from 59°F at Roswell to 63°F at Carlsbad.

RANGE SITE - No. 50a

3. TOPOGRAPHY AND ELEVATIONS:

The topography is level to gently undulating. It may be intermixed with Sandy Upland, Shallow Upland, and Sandy Plains sites. The dominant slopes for this site are 0 to 3 percent. Elevation ranges 3,100 feet around Jal and Carlsbad areas to 4,200 feet around the Ft. Sumner area. Areas around Lulu, Cornudas Mountains, and small isolated places in the resource area may be up to 5,000 feet in elevation.

4. SOILS:

- a. The soils which characterize this site are loams, ranging from shallow to moderately deep over chalky loam or chalky earth containing 50 percent or more CaCO_3 . Water intake ranges from fast to rapid, and runoff is very slow. Moisture holding capacity is good, subsoil and substrata are moderate to rapidly permeable.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Arch loam
Drake loam

- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Blue grama
Sideoats grama
Vine-mesquite
Little bluestem
Black grama

Increasers

Sand dropseed
Buffalograss
Threeawns
Tobosa
Inland saltgrass
Alkali sacaton
Ring muhly
Broom snakeweed
Little soapweed.

Invaders

Burrograss
Mesquite
Annuals

RANGE SITE - No. 50a

5. POTENTIAL VEGETATION: (continued)

- b. The decreasers make up 70 percent of the vegetation and the remainder is increasers. The potential vegetation is blue grama, sideoats grama, black grama, and vine-mesquite. Sand dropseed, buffalograss, threeawn spp, tobosa, inland saltgrass, together with yucca may make up the remainder. Forbs like broom snakeweed are common to the site and may make up 5 percent of the cover.
- c. Annual herbage yields, based on plot clippings, vary from 2,000 pounds per acre in favorable years and 500 pounds per acre in less favorable years when the site is in excellent condition. *
- d. Basal herbage covers 30 to 40 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

NW 1/4, Sec. 35, T 7S, R 27E, in Chaves County.

* Based on limited clipping data and estimates.

RANGE CONDITION GUIDE

#50a

Range Site Name Limey Upland (SD-3)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|---------------------|------------------------------------|----------------|--------------|
| | (Count all percent) | (Count no more than percent shown) | % By Wt. | (Count None) |
| 1 | Blue grama | Buffalograss | 15 | Burrograss |
| 2 | Sideoats grama | Sand dropseed | 10 | Mesquite |
| 3 | Vine-mesquite | Threeawns | 5 | Annuals |
| 3 | Black grama | Tobosa | 5 | |
| 5 | Little bluestem | Alkali sacaton | 5 | |
| | | Ring muhly | 5 | |
| | | Inland saltgrass | T | |
| | | Broom snakeweed | 5 | |
| | | Little soapweed | 5 | |

Maximum total percent 30

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 25 | 15 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 2,000 | | | |
| Unfavorable Years | 500 | | | |

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UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Western Plateaus and Mesas (WP-2)

TG Section II E

RANGE SITE - No. 51

1. RANGE SITE NAME: Limey Upland (WP-2)

2. CLIMATE:

- a. Precipitation varies from 10 inches in the Northern extremes of WP-2 sub-unit at Crownpoint to 12 inches at Gallup and 14 inches at Quemado, Bluewater, and Magdalena. Analysis of the long time rainfall pattern for each year shows 64 percent of the years below this average and only 35 percent of the rainfall above average. Most of the moisture falls in July, August, and September in high intensity thunder shower type rains which occur in a short period of time. Some moisture occurs in the winter snowfall.
- b. Wind velocities are high in this area. High wind during March and April causes much erosion and evaporation of moisture on unprotected areas.
- c. The major forage producing growing season begins about the first of July and ends early in September. Frost-free period is also highly variable. The last killing frost in the spring will occur about the first of June and the first killing frost of the fall about the last of September. Through the 120 to 130 day period of time of June, July, August, and September, killing frost may occur, but not often.

3. TOPOGRAPHY AND ELEVATION:

- a. This site occurs on strong slopes and plains from 0 to 15 percent slope. The site is often broken by limestone hill outcrops.
- b. The site occurs at elevations between 6,000 up to 7,500 feet, often forming a belt or terrace to mountains.

4. SOILS:

- a. These soils are highly calcareous. They are usually underlain by soft caliche within 15 inches of the surface. Soil depth varies from shallow to very shallow. Pockets of deeper soil are interspersed through the site, but an average depth is 10-12 inches. Surface soil is medium-textured with a low water storage potential. Water intake is variable depending on the vegetative cover. High runoff is common when ranges are in poor range condition.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Dean loam

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|------------------------------------|--------------------|-----------------|
| Blue grama | Poverty threeawn | Pingue |
| Bluestem (western) wheat- grass | Ring muhly | Loco |
| Chamiza | Fluffgrass | Lupine |
| Alkali sacaton | Sand dropseed | |
| Common winterfat | Rubber rabbitbrush | |
| Galleta | Broom snakeweed | |
| | Cactus spp. | |
| | Pinon | |
| | Juniper | |

- b. The decreaseers make up 70 percent of the vegetation and the remainder is increasers. There may be a trace of woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 25 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#51

Range Site Name Limey Upland (WP-2)

| Rating | Decreasers (Count all %) | Increasers (Count no more than % shown) | Max. % By Wt. | Invaders (Count none) |
|--------|-----------------------------|-----------------------------------------------|------------------------|--------------------------|
| 1 | Blue grama | Poverty threeawn | 5 | Pingue |
| 4 | Bluestem (western) | Ring muhly | T | Loco |
| | wheatgrass | Fluffgrass | T | Lupine |
| 5 | Chamiza | Sand dropseed | 15 | |
| 3 | Galleta | Rubber rabbitbrush | 10 | |
| 5 | Alkali sacaton | Broom snakeweed | T | |
| 2 | Common winterfat | Cactus spp. | T | |
| | | Pinon | T | |
| | | Juniper | T | |

Maximum total % 30

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 25 | 20 | 10 | X |

Approximate Air-Dry Forage Yields By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Central Plains and Valleys (CP-2, CP-3)

TG Section II E

RANGE SITE - No. 51a

1. RANGE SITE NAME: Limey Upland (CP-2, CP-3)

2. CLIMATE:

- a. Precipitation averages approximately 14 inches; however, it may vary from 5 to 40 inches yearly. Most of the precipitation falls in the form of rain from high intensity storms of short duration in May, June, July, and August. July and August usually receive most of the precipitation. There are extreme fluctuations in precipitation from year to year.
- b. Wind velocities are quite high. Gusts of 35 to 40 m.p.h. are not uncommon. The winds may occur at any time during the year, but March, April, and May are usually the worst months.
- c. The optimum growing season of the native warm season plants begins about May 15 and continues to September 15 when moisture conditions are favorable. Limited growth, however, will start about April 10 and continue to the latter part of October in some years. Temperatures range up to 105° during the daytime and to the 50's at night during the summer. Winter temperatures go as low as -25°. Sudden temperature changes of as much as a 40° drop in one hour during the winter are not uncommon.

3. SOILS:

- a. The soils of this site are loamy, containing much free lime, and have varying amounts of caliche gravels in the surface horizon. These soils are 6 to 15 inches deep and are underlain by soft unconsolidated caliche. The caliche can be penetrated with a shovel. The soils take water moderately well and the penetration is moderate to slow. The water holding capacity is low due to the shallow depth thus resulting in a droughty soil. The soils are highly susceptible to wind erosion.
- b. The soils of this site are:

SERIES, TYPES, AND PHASES

Dean loam
Dean gravelly loam, eroded

- c. Complete soil series descriptions are available in Torrance County Soil Survey descriptive legend.

4. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|----------------------------------------|-------------------|-----------------|
| Indian ricegrass | Sand dropseed | Snakeweed |
| N. M. feathergrass | Spike dropseed | Annuals |
| Needleandthreadgrass | Blue grama | Juniper |
| Little bluestem | Sage | Pinon |
| Little bluestem (var. neomexicanus) | Ring muhly | Foxtail barley |
| Black grama | Poverty threeawn | |
| Sideoats grama | Small soapweed | |
| Winterfat | Cholla cactus | |

- b. The decreasing species make up 60 percent of the vegetation. The remainder is increasers. Winterfat may make up 5 percent of the total vegetation by weight in excellent condition.

- c. Annual herbage yield on this site based on plot clipping is _____ to _____ pounds per acre.

- d. Basal herbage covers 25 percent of the ground

5. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#51a

Range Site Name Limey Upland (CP-2, CP-3)

| Rating | <u>Decreasers</u> | <u>Increasers</u> | <u>Max.</u> | <u>Invaders</u> |
|--------|----------------------|------------------------------|----------------|-----------------|
| | (Count all %) | (Count no more than % shown) | % By Wt. | (Count none) |
| 5 | Indian ricegrass | Sand dropseed | 10 | Broom snakeweed |
| 2 | N. M. feathergrass | Spike dropseed | 10 | Annuals |
| 1 | Needleandthreadgrass | Ring muhly | 5 | Juniper |
| 4 | Little bluestem | Poverty threeawn | 5 | Pinon |
| 1 | Black grama | Cholla cactus | T | Foxtail barley |
| 3 | Sideoats grama | Small soapweed | T | |
| 4 | Common winterfat | | | |

| | |
|-----------------------|----|
| Maximum total percent | 40 |
|-----------------------|----|

| | <u>Range Condition Classification</u> | | | |
|-------------------------------------------|---------------------------------------|-------------|-------------|-------------|
| | <u>Excellent</u> | <u>Good</u> | <u>Fair</u> | <u>Poor</u> |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 25 | 15 | 10 | 4 |

Approximate Air-Dry Forage Yields per Acre By:

| | <u>Range Condition Classification</u> | | | |
|-------------------|---------------------------------------|-------------|-------------|-------------|
| | <u>Excellent</u> | <u>Good</u> | <u>Fair</u> | <u>Poor</u> |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-2)

TG Section II-E

RANGE SITE - No. 52

1. RANGE SITE NAME: Limey Slopes (SD-2)

2. CLIMATE:

- a. Precipitation averages from 8 to 12 inches and ranges from an all time low of 2.9 inches to a record high of 25.7 inches. The greater part occurs during the months of July, August, and September. There are extreme fluctuations from year to year, with periodic droughts. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages less than half an inch per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. These high winds in March, April, and May cause extensive erosion on unprotected soils. High temperatures, fairly constant winds, and low humidity cause the average annual evaporation to range up to 107 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during July, August, and September. The growing season of the native warm season plants begins after the last frost, March 29 to April 23, and continues as moisture is available until October 15 to November 12, which are the average dates ending the frost free period. Winters are generally mild, however, there is a recorded low of -10°F . The maximum summer temperature on record is 110°F . Average annual temperatures range from 58°F to 60°F .

3. TOPOGRAPHY AND ELEVATIONS:

This site lies between 4,200 and 5,500 feet elevation. Slopes are moderate to gentle, extending down from Stony Mountain or Stony Hill Sites and may be broken by moderate to deep ephemeral stream beds. Slopes will average from 3 to 5 percent and may go to 15 percent.

4. SOILS:

- a. Soils included are generally medium textured, gravelly and/or rocky. Usually they are alluvial fans with cobble and gravel throughout the profile. They take water at moderate rate. Moisture holding capacity is low to medium. They are usually calcareous to the surface and often contain a well developed caliche (lime cemented) hard pan. This site is subject to severe erosion when vegetative cover is inadequate.

RANGE SITE - No. 52

4. SOILS: (continued)

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Cave gravelly loam
Cavot gravelly loam
Cavot gravelly sandy loam

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legend, or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Black grama
Sideoats grama
Bush muhly
Blue grama
Hairy grama
Vine-mesquite
Arizona cottontop
Cane bluestem

Increasers

Tobosa
Slim tridens
Threeawns
Hairy tridens
Fluffgrass
Burrograss
Common winterfat
Chamiza
Creosotebush
Littleleaf sumac
Feather dalea
Rocky Mountain zinnia
Mescat acacia
Catclaw
Ocotillo
Range ratany
Soaptree yucca
Broom snakeweed
American tarbush
Mariola
Cactus
Loco
Condalia
Wright lippia

Invaders

Mesquite

5. POTENTIAL VEGETATION: (continued)

- b. The decreasers make up 70 percent of the vegetation and the remainder may be increasers. There may be 20 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is 300 to 450 pounds per acre. *
- d. Herbage covers 15 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

Outwash fans from hills east side of Nutt Mountain.
South of Lordsburg 2 miles along old Animas Highway.
One-half mile north of State Highway 52 and 11.2 miles east of Truth or Consequences, New Mexico.

* Based on limited plot clippings and estimates.

Range Site Name Limey Slopes (SD-2)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|---------------------------------------|-----------|--------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Black grama | Range ratany | 5 | Mesquite |
| 1 | Sideoats grama | Fluffgrass | 5 | |
| 1 | Bush muhly | Hairy tridens | 5 | |
| 4 | Blue grama | Chamiza | 5 | |
| 4 | Hairy grama | Burrograss | 5 | |
| 5 | Vine-mesquite | Creosotebush | 5 | |
| 5 | Arizona cottontop | Littleleaf sumac | 5 | |
| 5 | Cane bluestem | Feather dalea | 5 | |
| | | Slim tridens | 10 | |
| | | Tobosa | 10 | |
| | | Threeawns | 10 | |
| | | Common winterfat | 10 | |
| | | Rocky Mountain zinnia | T | |
| | | Mescal acacia | T | |
| | | Catclaw | T | |
| | | Ocotillo | T | |
| | | Soaptree yucca | T | |
| | | Broom snakeweed | T | |
| | | American tarbush | T | |
| | | Mariola parthenium | T | |
| | | Cactus | T | |
| | | Loco | T | |
| | | Condalia | T | |
| | | Wright lippia | T | |

Maximum total percent 30

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 15 | 10 | 5 | Any |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 300 | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Central Plains and Valleys (CP-1)

TG Section II-E

RANGE SITE - No. 53

1. RANGE SITE NAME: Shallow Shale (CP-1)

2. CLIMATE:

- a. Annual precipitation averages from 15 to 18 inches. Approximately three-fourths of the annual average occurs during the period April to October inclusive. July and August most commonly receive the highest monthly totals. There are extreme fluctuations from year to year with recurrent droughts that have lasted as long as 4 years. Annual rainfall in the area has fluctuated from a high of 37.65 inches to a low of 5.54 inches in a 10 year period. Summer rainfall is characterized by torrential thundershowers producing high runoff from unprotected soils. Winter precipitation, which averages about 1/2 inch per month, usually occurs in the form of snow.
- b. Wind velocities for the area are high, averaging about 4.5 miles per hour on an annual basis. Spring windstorms occur frequently with velocities in excess of 45 miles per hour causing severe wind erosion on soils inadequately protected by vegetation. Humidity is low and evaporation high, averaging 60 inches or more during the period April through October.
- c. The frost free season ranges from about 135 days at the higher elevations to about 165 days at lower elevations. The principal growing season for native plants occurs from May 15 to September 15 if sufficient moisture is available. Sub zero temperatures will usually occur every year with minimums of -20°F not uncommon. Summers are characterized by warm days and cool nights with maximum temperatures seldom reaching 100°F. The percentage of sunshine is high, averaging about 80 percent of the possible amount.

3. TOPOGRAPHY AND ELEVATIONS:

This site occurs on level to moderately sloping topography. Slopes vary from 0 to 10 percent. Elevation ranges from approximately 5,800 feet upward to about 7,400 feet.

4. SOILS:

- a. This site is made up of relatively level areas of footslopes and alluvial fans derived from eroding shale formations. These soils take water very slowly and when adequate cover is lacking are subject to severe sheet and gully erosion.

TG Section II-E

RANGE SITE - No. 53

4. SOILS: (continued)

b. Significant soil series of this site are:

Midway (like) soils
Orman soils, eroded

c. Detailed descriptions of these soils may be found in the descriptive legend for Standard Soil Surveys in Colfax, and Union Counties.

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Alkali sacaton
Western wheat grass
Vine mesquite
Sideoats grama
Four wing saltbush
Winter fat

Increasers

Blue grama
Galleta
Buffalo grass
Mat muhly
Wolfberry

Invaders

Three-awns
Ring grass
Snake weed
Texas tumblegrass
Annuals

b. 60 percent of the climax vegetation is made up of decreasing species.

c. Accurate data on yields of this site are lacking.

d. Ground cover: Approximately 40 percent.

6. SPECIFIC TYPE LOCATION:

Approximately 1 mile north of the Philmont Scout Ranch headquarters in the Horse Mesa Pasture.

RANGE CONDITION GUIDE

#53

Range Site Name Shallow Shale (CP-1)

| Rating | Decreasers | Increasers | Max. % By Wt. | Invaders |
|--------|---------------------|---------------------------------------|------------------------|-------------------|
| | (Count all percent) | (Count no more than percent shown) | | (Count None) |
| 2 | Alkali sacaton | Blue grama | 30 | Three-awns |
| 2 | Western wheatgrass | Galleta grass | 15 | Ring grass |
| 4 | Vine mesquite | Buffalo grass | 10 | Broom snakeweed |
| 4 | Sideoats grama | Mat muhly | T | Texas tumblegrass |
| 4 | Fourwing saltbush | Wolfberry | T | Sleepy grass |
| 5 | Winterfat | Cholla cactus | T | |
| 5 | Plains muhly | Prickly pear | T | |
| 5 | Spike muhly | | | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 35 | 35 | 25 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | XX | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Northern Desert Valleys and Mesas (ND)
Western Plateaus and Mesas (WP-2)

TG Section II E

RANGE SITE - No. 54

1. RANGE SITE NAME: Shallow Shale (ND, WP-2)

2. CLIMATE:

- a. The average annual rainfall in the Northern Desert Land Resource Area is 10 inches. Some recordings are as low as 6.76 inches annually in the San Juan Valley. Approximately one-third of these amounts falls in the form of winter snow from December through March. Intense summer thunder showers are common throughout the district during July, August, and September when average amounts for this season equal 3 to 4 inches. The frost-free period of the year is ordinarily late spring (May-June) and fall (Oct.-Nov.).
- b. Spring winds contribute to zeric conditions over most of the district.
- c. The principal growing season on this site is during the summer months when precipitation amounts and temperatures are optimum for grama. At elevations above 6,500 feet, cool season growers make a considerable production during March and April and, after a dormant summer season, will make some growth in the fall (Oct.-Nov.). Frost-free periods range from about 140 days in the higher portion of the district to 163 days in the lower portion. These periods extend from May 8 and May 22 to October 8 and October 18.

3. TOPOGRAPHY AND ELEVATION:

- a. This site occurs within the Northern Desert Land Resource Area on the open, flat to moderately sloping areas. Maximum slope for this site is ten percent.
- b. Elevation varies from 5,000 feet to 7,000 feet. At the lower elevations in the site, the salt-tolerant plants begin to become more numerous on the flatter areas. The site includes all exposures. The various exposures will support different amounts of vegetation giving the site a complex effect. The complex site areas, such as north and south slope, will be mapped as one site. The slope may be broken or irregular.

4. SOILS:

- a. These shale soils are less than 15 inches in depth. Surface texture is heavy to very heavy with a slow intake of water. In high rain-fall periods over a short period of time, runoff is fast resulting in eroding V type gullies if the vegetative cover is sparse. The surface tends to crust and seal over reducing the moisture intake rate. High salt content is often present. Salt-tolerant plants are indicators of salinity content.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Chipeta silty clay loam

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Alkali sacaton
Bluestem (western) wheat-
grass
Indian ricegrass
Galleta
Blue grama
Chamiza

Increasers

Mat muhly
Poverty threawn
Ring muhly
Foxtail barley
Shadscale
Sandhill muhly

Invaders

Pinon
Juniper
Pingue
Loco
Whorled
milkweed

- b. The decreaseers make up 75 percent of the vegetation and the remainder is increasers.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 20 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#54

Range Site Name Shallow Shale (ND) (WP-2)

| Rating | Decreasers (Count all %) | Increasers (Count no more than % shown) | Max. % By Wt. | Invaders (Count none) |
|--------|----------------------------------|-----------------------------------------------|------------------------|--------------------------|
| 1 | Alkali sacaton | Mat muhly | T | Pinon |
| 2 | Bluestem (western) wheatgrass | Poverty threeawn Ring muhly | 10 5 | Juniper Pingue |
| 3 | Indian ricegrass | Foxtail | T | Loco |
| 2 | Galleta | Shadscale | 5 | Whorled |
| 5 | Blue grama | Sandhill muhly | 5 | milkweed |
| 5 | Chamiza | | | |

Maximum total percent 25

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 20 | 15 | 10 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Western Plateaus and Mesas (WP-1)

TG Section II E

RANGE SITE - No. 55

1. RANGE SITE NAME: Shallow Shale (WP-1)

2. CLIMATE:

- a. Precipitation varies from less than 10 inches in lower areas to 13 inches at the higher elevations adjacent to the lower elevations of the Mountain Range Sites and Hills. Approximately one-half of the moisture occurs in the form of high intensity thunder showers over a short period of time. The high intensity rainfall period is the summer months of July, August, and September. Runoff may be excessive on the sites in the poorer range condition classes. Snowfall throughout the winter months accounts for the remaining moisture. Early and late winter moisture in the form of light rain occurs some years, but contributes little to the moisture supply.
- b. Hard blowing southwest winds are common in the early spring, melting winter snow accumulations and evaporating soil moisture before the growing season starts.
- c. The growing season is about 140 days with 110 days frost-free from June 1 to the latter part of September. Low rainfall years will result in early killing frost in the fall. Years of higher rainfall in the late fall will delay the frost resulting in a longer growing season.

3. TOPOGRAPHY AND ELEVATION:

- a. The site occurs at elevations from 5,000 to 7,000 feet. Mountain sites, hills, or breaks are common at the higher elevations of the site.
- b. Although the dominant slope is around 3 percent, the topography may be broken, rolling, undulating, and cut by arroyos. Other sites such as hills may occur interspersed within the site.

4. SOILS:

- a. These shale soils are less than 15 inches in depth. Surface texture is moderately fine to fine with a slow intake of water. In high rainfall periods over a short period of time, runoff is fast resulting in eroding V type gullies if the vegetative cover is sparse. The surface tends to crust and seal over, reducing the moisture intake rate. High salt content is often present. Salt-tolerant plants are indicators of salinity content.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Chipeta silt loam and silty clay loams

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Alkali sacaton
Galleta
Bluestem (western) wheat-
grass
Indian ricegrass
Chamiza
Blue grama
Common winterfat

Increasers

Shadscale
Black sagebrush
Sandhill muhly
Woolly groundsel
Cheatgrass
Greasewood

Invaders

Pinon
Juniper
Pingue
Loco
Whorled milkweed

- b. The decreaseers make up 70 percent of the vegetation and the remainder is increasers.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers from 15 to 25 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#55

Range Site Name Shallow Shale (WP-1)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|----------------------------------|------------------------------------|----------------|-------------------|
| | (Count all %) | (Count no more than % shown) | % By Wt. | (Count none) |
| 2 | Galleta | Shadscale | 10 | Pinon |
| 2 | Bluestem (western) wheatgrass | Black sagebrush Wooly groundsel | 5 T | Juniper Pingue |
| 4 | Indian ricegrass | Cheatgrass | 5 | Loco |
| 3 | Chamiza | Greasewood | T | Whorled |
| 4 | Blue grama | Sandhill muhly | 10 | milkweed |
| 1 | Alkali sacaton | | | |
| 5 | Common winterfat | | | |

Maximum total percent 30

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 20 | 15 | 10 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--High Plains (HP-1)
Central Plains and Valleys (CP-1)

TG Section II-E

RANGE SITE - No. 56

1. RANGE SITE NAME: Shallow Upland (HP-1, CP-1)

2. CLIMATE:

- a. Annual precipitation averages from 15 to 18 inches. Approximately three-fourths of the annual average occurs during the period April to October inclusive. July and August most commonly receive the highest monthly totals. There are extreme fluctuations from year to year with periodic droughts that have lasted as long as 4 years. Annual rainfall in the area has fluctuated from a high of 37.65 inches to a low of 5.54 inches in a 10 year period. Summer rainfall is characterized by torrential thundershowers producing high runoff from unprotected soils. Winter precipitation, which averages about 1/2 inch per month, usually occurs in the form of snow.
- b. Wind velocities for the area are high, averaging about 4.5 miles per hour on an annual basis. Spring windstorms occur frequently with velocities in excess of 45 miles per hour, causing severe wind erosion on soils inadequately protected by vegetation. Humidity is low and evaporation high, averaging 60 inches or more during the period April through October.
- c. The frost free season ranges from about 135 days at the higher elevations to about 165 days at lower elevations. The principal growing season for native plants occurs from May 15 to September 15 if sufficient moisture is available. Sub zero temperatures will usually occur every year with minimums of -20°F not uncommon. Summers are characterized by warm days and cool nights, with maximum temperatures seldom reaching 100°F. The percentage of sunshine is high, averaging about 80 percent of the possible amount.

3. TOPOGRAPHY AND ELEVATIONS:

This site occurs on level to moderately sloping areas throughout the resource areas at elevations ranging from approximately 5,000 feet up to 7,500 feet. Slopes are variable but are usually under 10 percent.

4. SOILS:

- a. The soils of this site are very shallow, less than 10 inches in depth, and are usually rocky or gravelly on the surface and throughout the profile. These soils are medium textured and usually have a moderate to rapid infiltration rate.

RANGE SITE - No. 56

4. SOILS: (continued)

b. Principal soils series and types of this site are:

| | |
|---------------------------|------------------------|
| Kimbrough fine sandy loam | Penrose loam |
| Penrose clay loam | Potter loam |
| Potter stoney loam | Potter fine sandy loam |

c. Complete soil descriptions may be found in the Standard Soil Survey Legends for Colfax, Harding, and Union Counties.

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|-------------------------|-------------------|-----------------|
| Little bluestem | Blue grama | Buffalo grass |
| Sideoats grama | Hairy grama | Galleta |
| New Mexico feathergrass | Wolftail | Ring grass |
| Big bluestem | Three-awns | Cudwart sage |
| Indian grass | Fringed sage | Hairy aster |
| Western wheatgrass | Bigelow sage | |
| | Buckwheats | |
| | Loco | |

b. The dominant plant cover in climax condition consists of mid grasses. Principal species are: Little bluestem, sideoats grama, New Mexico needlegrass, big bluestem, needle and thread grass, blue grama, wolftail, and three-awns. There may be a small amount of shrubs. The most common woody species are yucca, squawbush, apache plume, and winter fat. 50 percent of the climax vegetation should consist of decreasing species.

c. Annual herbage yields, based on limited plot clippings, air dry forage per acre, favorable years 1,600 to 2,000 pounds.

d. Ground cover, optimum 25 to 33 percent.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#56

Range Site Name Shallow Upland (HP-1, CP-1)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|-------------------------|---------------------------------------|-----------|------------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 2 | Little bluestem | Blue grama) | 30 | Buffalo grass |
| 2 | Sideoats grama | Hairy grama) | | Galleta grass |
| 3 | New Mexico feathergrass | Wolf tail | 5 | Ring muhly |
| 4 | Big bluestem | Three-awns | 5 | Herbacious sages |
| 5 | Indian grass | Fringed sagebush | 5 | Hairy aster |
| 5 | Western wheatgrass | Bigelow sagebush | 5 | Nail |
| 5 | Spike muhly | Buckwheats | T | |
| | | Nailwort | T | |

Maximum total percent 50

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 30 | 20 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 2,000 | | | |
| Unfavorable Years | 1,400 | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--High Plains (HP-2)
Central Plains and Valleys (CP-2, CP-3)

TG Section II-E

RANGE SITE - No. 57

1. RANGE SITE NAME: Shallow Upland (HP-2, CP-2, CP-3)

2. CLIMATE:

- a. Annual average precipitation for this area averages from approximately 14 to 17 inches. About three-fourths of this amount falls during the period April to October inclusive, with July and August usually recording the highest monthly averages. Spring and summer rainfall is characterized by torrential thundershowers of high intensity and short duration, that produce high runoff from unprotected soils. There are extreme fluctuations in the amount of rainfall from year to year and periodic droughts lasting from 3 to 4 years have occurred. Annual rainfall in the area has ranged from a high of 40 inches to as low as 6.15 inches. Winter moisture may occur as either rain or snow and usually averages less than 1/2 inch per month.
- b. Wind velocities in this area are high and average about 5.3 miles per hour on an annual basis. The spring months are characterized by frequent wind storms with velocities in excess of 45 miles per hour which cause excessive erosion on soils not protected by a good cover of vegetation. Humidity is low and evaporation is high, usually averaging 75 inches during the period April to October inclusive.
- c. The principal growing season of native vegetation occurs during the period May through September inclusive. The frost free season averages 188 days April 17 to October 22. Summers are hot with maximum temperatures frequently reaching 100°F or more from late May to early September. Winters are characterized by warm sunny days and cold nights, with occasional "northers" that may keep temperatures below freezing for several days. Temperatures of 0°F or lower have occurred in about half of the years of record, with -18°F the lowest temperature of record in the area. The percentage of sunshine is high, averaging 80 percent or more of the possible amount in most years.

3. TOPOGRAPHY AND ELEVATIONS:

This site occurs on nearly level to moderately sloping areas. Slopes range from 0 to 10 percent. It occurs at all elevations in the sub-resource area from about 3,800 feet to approximately 6,500 feet.

RANGE SITE - No. 57

4. SOILS:

- a. The soils of this site have loamy textures and are shallow to very shallow to hard caliche or limestone. There is usually some rock on the surface and throughout the profile.
- b. Significant soil series of this site are:
- | | |
|---------------------------|------------------------|
| Kimbrough fine sandy loam | Potter loam |
| Penrose loam | Potter fine sandy loam |
| | Travessilla loam |
- c. Detailed descriptions of these soils series may be found in the descriptive legend for Standard Soil Surveys in Harding and Quay Counties.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|-------------------------|-------------------|-----------------|
| Little bluestem | Blue grama | Juniper |
| Black grama | Hairy grama | Mesquite |
| Sideoats grama | Galleta | Buffalo grass |
| New Mexico feathergrass | Sand dropseed | Ring muhly |
| Needle and thread | Texas timothy | Three-awns |
| Big bluestem | Bigelow sage | Hairy tridens |
| Spike muhly | Fringed sage | Rough tridens |
| | Feather peabush | |
| | Catclaw (acacia) | |
| | Buckwheats | |
| | Yucca | |

- b. The climax vegetation of this site consists of a rather complex mixture of mid and short grasses. Several shrubby species are common on this site. Up to 10 percent of these woody species may be found in excellent condition. 50 percent or more of the climax vegetation is made up of decreasing species.
- c. Yields: Air dry herbage per acre, 1,600 to 2,000 pounds in favorable years.
- d. Ground cover: Approximately 30 percent.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#57

Range Site Name Shallow Upland (HP-2, CP-2, CP-3)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|-------------------------|---------------------------------------|-----------|---------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 3 | Little bluestem | Blue grama | 25 | Juniper |
| 3 | Black grama | Hairy grama | 5 | Mesquite |
| 3 | Sideoats grama | Galleta grass | 5 | Buffalo grass |
| 4 | New Mexico feathergrass | Sand dropseed | 5 | Ring muhly |
| 5 | Needle and thread | Texas timothy | 5 | Hairy tridens |
| 5 | Big bluestem | Bigelow sagebrush | 5 | Rough tridens |
| 5 | Spike muhly | Fringed sagebrush | 5 | Sand muhly |
| | | Feather dalea | T | |
| | | Catclaw acacia | T | |
| | | Buckwheat | T | |
| | | Small soapweed | 5 | |
| | | Broom snakeweed | T | |
| | | Three-awns | T | |

Maximum total percent 50

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 30 | 20 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 1,800 | | | |
| Unfavorable Years | 1,200 | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--High Plains (HP-3)

TG Section II-E

RANGE SITE - No. 58

1. RANGE SITE NAME: Shallow Upland (HP-3)

2. CLIMATE:

- a. Annual precipitation for this area ranges from approximately 14 to 18 inches. Approximately 70 percent of this amount falls during April to October inclusive. July, August, and September are the months of highest rainfall. Summer rainfall is characterized by torrential thundershowers of high intensity and short duration that produce high runoff from unprotected soils. There are wide fluctuations in the amount of precipitation from year to year and periodic droughts have occurred, some lasting for 4 years or longer. Winter moisture may occur as either rain or snow and usually averages less than 1/2 inch per month. When snow occurs it melts quickly and snow cover persisting as long as 1 week is unusual.
- b. Wind velocities in this area are high. The spring months are characterized by frequent wind storms with velocities in excess of 45 miles per hour causing severe wind erosion on soils unprotected by adequate vegetation. Humidity is low and evaporation is high, averaging from 75 to in excess of 100 inches.
- c. The frost free season of this sub-area ranges from about 185 days in the north to 215 days in the south. Nocturnal temperatures and length of season are adequate for the growth of cotton where edaphic conditions are favorable and irrigation water is available. Principal grasses of this area are warm season species. The principal growing season is during the late summer and early fall, depending on the availability of moisture. Winters are characteristically warm and open, with occasional "northers" dropping the temperature to 0° or lower for short periods of time in about 1/3 of the years of record. Occasional and infrequent temperatures as low as -25°F have occurred. Summers are hot with temperatures of over 100°F occurring frequently from May through September. The amount of sunshine is high, averaging in excess of 80 percent of the possible amount in most years.

3. TOPOGRAPHY AND ELEVATIONS:

This site consists of level to moderately sloping Plains Upland. It occurs throughout the sub resource area, at elevations ranging from approximately 3,000 feet to 4,800 feet.

RANGE SITE - No. 58

4. SOILS:

- a. This site is made up of shallow to very shallow loamy textured soils. These soils occur over limestone, caliche, or sandstone.
- b. Significant soil series of this site are:
- | | |
|---------------------------|------------------------|
| Kimbrough loam | Potter loam |
| Kimbrough fine sandy loam | Potter fine sandy loam |
| Larimer gravelly loam | |
- c. Detailed descriptions of these soils series may be found in the descriptive legend for Standard Soil Surveys in Curry, Lea, Roosevelt Counties, and the Southwest Quay area.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|-------------------------|--------------------|-----------------|
| Black grama | Blue grama | Hairy tridens |
| Little bluestem | Hairy grama | Fluff grass |
| New Mexico feathergrass | Sand dropseed | Burro grass |
| Arizona cotton top | Buffalo grass | Creeping muhly |
| Bush muhly | Wolf tail | Mesquite |
| Mormon tea | Silver beard grass | Prickly pear |
| Bigelow's sage | Catclaw | Cholla cactus |
| Sideoats grama | Feather peabush | |
| | Yucca | |
| | Sand muhly | |
| | Three-awns | |
| | Snake weed | |
| | Spike pappus grass | |
| | Fringed sage | |

- b. About 40 percent of the climax vegetation consists of decreasing species. Several woody species are indigenous to this site and up to 10 percent of woody species may occur in excellent condition.
- c. Yields: Air dry herbage per acre 1,200 to 1,500 pounds in favorable years.
- d. Ground cover: Approximately 30 percent

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#58

Range Site Name Shallow Upland (HP-3)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|-------------------------|------------------------------------|----------------|----------------|
| | (Count all percent) | (Count no more than percent shown) | % By Wt. | (Count None) |
| 3 | Black grama | Blue grama) | 40 | Hairy tridens |
| 4 | Little bluestem | Hairy grama) | | Fluff grass |
| 4 | Sideoats grama | Sand dropseed | 5 | Burro grass |
| 5 | New Mexico feathergrass | Wolftail | 5 | Creeping muhly |
| 5 | Arizona cottontop | Silver bluestem | 5 | Mesquite |
| 5 | Bush muhly | Cane bluestem | 5 | Prickly pear |
| 5 | Bigelows sage | Catclaw acacia | T | Cholla cactus |
| 5 | Longleaf ephedra | Feather dalea | T | |
| | | Small soapweed | 5 | |
| | | Sand muhly | T | |
| | | Three-awns | T | |
| | | Broom snakeweed | T | |
| | | Spike pappusgrass | 5 | |
| | | Fringed sage | T | |

Maximum total percent 60

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 30 | 20 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 1,500 | | | |
| Unfavorable Years | 800 | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Central Plains and Valleys (CP-4)

TG Section II-E

RANGE SITE - No. 59

1. RANGE SITE NAME: Shallow Upland (CP-4)

2. CLIMATE:

- a. Annual average precipitation for this area ranges from approximately 12 to 16 inches. About three-fourths of the annual average precipitation occurs between April 1 and October 1, with July, August, and September having the highest monthly averages. Most of the rainfall occurs as thundershowers of high intensity and short duration, resulting in heavy runoff from unprotected soils. There are extreme fluctuations in both the amount and time of rainfall from year to year. Recurrent droughts lasting for 3 to 4 years are not infrequent. Annual rainfall in the area may range from as high as 30 or more inches to as low as 4 inches.
- b. Wind velocities are high in this area. The spring months are characterized by frequent wind storms that cause excessive erosion on soils that are not adequately protected by vegetative cover. Humidity is low and evaporation is high.
- c. The frost free season ranges from approximately 175 to over 200 days. Summers are characterized by warm days and cool nights with daytime temperatures occasionally reaching 100°F from late May to early September. Winters are characterized by warm sunny days and cold nights. Occasional storms may result in below freezing weather for a period of 2 or 3 days. Temperatures of 0°F or lower have occurred in about 1/3 of the years of record with -22°F the lowest temperature that has been recorded in the area.

3. TOPOGRAPHY AND ELEVATIONS:

This site consists of areas of very shallow soil occupying the tops and less sloping sides of ridges that are interspersed with loamy Upland Sites. Slopes are commonly less than 5 percent but may range up to 10 percent. Elevations range from 3,400 feet to approximately 4,600 feet.

4. SOILS:

- a. Soils of this site are shallow to very shallow and usually have rock and/or gravel on the surface and throughout the profile. They are underlain at shallow depth by hard caliche or limestone. They take water

RANGE SITE - No. 59

4. SOILS:

rapidly but have limited water holding capacity. They respond best to light frequent showers.

b. Significant soils of this site are:

Ector stony loam
Cave gravelly loam

c. Detailed descriptions of these soils can be found in the handbook for Standard Soil Surveys in Chaves and Eddy Counties.

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Blue grama
Black grama
Sideoats grama
Hairy grama
Bush muhly
Little bluestem
Silver beard
Green sprangletop
Spike pappus grass
Arizona cottontop
Texas timothy
New Mexico feathergrass

Increasers

Three-awns
Hairy tridens
Slim tridens
Rough tridens
Yucca
Agave
Sotol
Alberita
Catclaw
Javalina bush
Snakeweed
Prickly pear

Invaders

Burrow grass
Tobosa
Ring muhly
Mesquite
Cholla cactus
Fluff grass

b. This site is characterized by a large number of woody species and as much as 15 percent woody plants may occur in excellent range condition.

c. Total herbage yield of air dry herbage per acre 1,000 to 1,400 pounds.

d. Ground cover: Approximately 25 percent.

6. SPECIFIC TYPE LOCATION:

1/4 mile N of SW corner Sec. 20, T 13S, R 24E, NMPM.

RANGE CONDITION GUIDE

#59

Range Site Name Shallow Upland (CP-4)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|-------------------------|------------------------------------|-----------|---------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Blue grama | Three-awns | 5 | Tobosa |
| 2 | Black grama | Hairy tridens | 5 | Mesquite |
| 4 | Sideoats grama | Rough tridens | 5 | Burro grass |
| 5 | Bush muhly | Hairy grama | 10 | Cholla cactus |
| 5 | Little bluestem | Soapweed | 5 | |
| 5 | Silver bluestem | Agave | 5 | |
| 5 | Green sprangletop | Sotol | 5 | |
| 5 | New Mexico feathergrass | Catclaw | 5 | |
| 5 | Wolf tail | Algerita | T | |
| | | Javalina bush | T | |
| | | Broom snakeweed | T | |
| | | Prickly pear | T | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 25 | 25 | 15 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 1,400 | | | |
| Unfavorable Years | 600 | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Northern Desert Valleys and Mesas (ND)

TG Section II E

RANGE SITE - No. 60

1. RANGE SITE NAME - Shallow Upland (ND)

2. CLIMATE:

- a. The average annual rainfall in the Northern Desert Land Resource Area is 10 inches. Some recordings are as low as 6.76 inches annually in the San Juan Valley. Approximately one-third of these amounts falls in the form of winter snow from December through March. Intense summer thunder showers are common. Throughout the district during July, August, and September, average amounts equal 3 to 4 inches. The frost-free period of the year is ordinarily late spring (May-June) and fall (Oct.-Nov.).
- b. Spring winds contribute to zeric conditions over most of the district.
- c. The principal growing season on this site is during the summer months when precipitation amounts and temperatures are optimum for grama. At the elevations above 6,500 feet cool season growers make a considerable production during March and April and, after a dormant summer season, will make some growth in the fall (Oct.-Nov.). Frost-free periods range from about 140 days in the higher portion of the district to 163 days in the lower portion. These periods extend from May 8 and May 22 to October 9 and October 18.

3. TOPOGRAPHY AND ELEVATION:

- a. This site occurs within the Northern Desert Land Resources Area on the open, flat to moderately sloping areas. Maximum slope for this site is 10 percent.
- b. Elevation varies from 5,000 feet to 7,000 feet. At the lower elevations in the site the salt-tolerant plants begin to become more numerous on the flatter areas. The site includes all exposures. The various exposures will support different amounts of vegetation giving the site a complex effect. The complex site areas, such as north and south slope, will be mapped as one site. The slope may be broken or irregular.

4. SOILS:

- a. Soil depths are very shallow, less than 10 inches deep. Surface texture is medium and a lime layer is usually encountered in the subsoil. Small pockets of deep soil are interspersed throughout the site. Water intake rate is medium, but moisture holding capacity is limited by soil depth. Plants do not grow abundantly on the shallow sites and may give the appearance of low vigor on many areas.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Unnamed soils

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Galleta
Blue grama
Indian ricegrass
Bluestem (western) wheat-
grass
Chamiza
Alkali sacaton

Increasers

Poverty threeawn
Ring muhly
Fluffgrass
Big sagebrush
Rubber rabbitbrush
Broom snakeweed
Longleaf Ephedra
Pinon
Juniper
Cactus spp.

Invaders

Pingue
Loco
Lupine

- b. The decreaseers make up 75 percent of the vegetation and the remainder is increasers. There may be 10 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 25 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#60

Range Site Name Shallow Upland (ND)

| Rating | Decreasers (Count all %) | Increasers (Count no more than % shown) | Max. % By Wt. | Invaders (Count none) |
|--------|----------------------------------|-----------------------------------------------|------------------------|--------------------------|
| 2 | Galleta | Poverty threeawn | 10 | Pingue |
| 1 | Blue grama | Ring muhly | T | Loco |
| 3 | Indian ricegrass | Fluffgrass | T | Lupine |
| 4 | Bluestem (western) wheatgrass | Big sagebrush Broom snakeweed | 15 T | |
| 5 | Chamiza | Pinon | 5 | |
| 5 | Alkali sacaton | Juniper | 5 | |
| | | Cactus | T | |
| | | Rubber rabbitbrush | 5 | |
| | | Longleaf Ephedra | | |

Maximum total percent 25

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 25 | 20 | 10 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

Sheet 3 of 3
6-18-62
R. A. A.

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Western Plateaus and Mesas (WP-1, WP-2)

TG Section II E

RANGE SITE - No. 61

1. RANGE SITE NAME: Shallow Upland (WP-1, WP-2)

2. CLIMATE:

- a. Precipitation varies from 10 to 14 inches with the average annual precipitation at Grants being 14 inches. Most of this falls during July, August, and September. A small percent is received in the form of snow during the winter.
- b. Wind velocities are high in this area in comparison to the rest of the United States. High wind during March and April causes much erosion and evaporation of moisture on unprotected areas.
- c. Although the frost-free period is about 130 days, most of the forage growth takes place during July, August, and early September except on exceptional years when moisture is lacking for spring growth.

3. TOPOGRAPHY AND ELEVATION:

- a. This range site occurs on the more gentle slopes at elevations between 6,000 and 7,500 feet. The topography is mostly undulating with slopes of 0 to 15 percent.

4. SOILS:

- a. Soils on this site are shallow, medium-textured in the surface, and have a low water storage potential. Depending considerably on general range condition, the intake rate is variable. Sites in the lower condition classes may take water quite slowly. Soils are from various parent materials.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Travessilla loam
La Porte loam

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Blue grama
Galleta
Alkali sacaton
Sideoats grama
Indian ricegrass

Increasers

Poverty threeawn
Ring muhly
Sand dropseed
Spike dropseed
Big sagebrush
Broom snakeweed
Rubber rabbitbrush
Cactus spp.
Pinon
Juniper
Longleaf Ephedra

Invaders

Pingue
Loco
Lupine
Whorled milkweed

b. The decreaseers make up 70 percent of the vegetation and the remainder is increasers. There may be 20 percent woody vegetation in excellent condition.

c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.

d. Basal herbage covers from 20 to 25 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#61

Range Site Name Shallow Upland (WP-1, WP-2)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|------------------|------------------------------|----------------|--------------|
| | (Count all %) | (Count no more than % shown) | % By Wt. | (Count none) |
| 1 | Blue grama | Poverty threeawn | 5 | Pingue |
| 2 | Galleta | Ring muhly | T | Loco |
| 5 | Sideoats grama | Sand dropseed | 10 | Lupine |
| 4 | Indian ricegrass | Spike dropseed | 10 | Whorled |
| 5 | Alkali sacaton | Big sagebrush | 5 | milkweed |
| | | Broom snakeweed | T | |
| | | Rubber rabbitbrush | T | |
| | | Cactus spp. | T | |
| | | Pinon | 10 | |
| | | Juniper | 10 | |
| | | Longleaf Ephedra | T | |

Maximum total percent 30

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 25 | 20 | 10 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Western Plateaus and Mesas (WP-3)

TG Section II-E

RANGE SITE - No. 62

1. RANGE SITE NAME: Shallow Upland (WP-3)

2. CLIMATE:

- a. Precipitation averages from 13 to 16 inches and ranges from an all time low of 5.8 inches to a record high of 31.17 inches. Approximately one-half of the precipitation occurs during the months of July, August, and September. There are extreme fluctuations from year to year with periodic droughts. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages one inch per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. High temperatures, fairly constant winds, and low humidity cause the average annual evaporation to range up to 93 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during June, July, and August. The growing season of the native warm season plants begins after the last frost, April 15 to April 28, and continues as moisture is available until October 16 to November 2, which are the average dates ending the frost free period. Winters are generally mild. Average annual temperatures range from 55°F. to 60°F.

3. TOPOGRAPHY AND ELEVATIONS:

The dominant topography is gently undulating and may be broken by Stony Hills site and moderately deep to deep, dry washes. The elevations vary from 4,150 to 6,500 feet above sea level.

4. SOILS:

- a. The soils on this site are very shallow, medium textured and are generally calcareous with a well developed caliche (lime cemented hard pan). Water intake rate on this site is affected by vegetative cover. With a good plant cover intake rates are good; with a poor plant cover intake rates are poor. Moisture holding capacity is low to medium. Pockets of deeper soil may be found, but the average depth is 10 inches or less. This site is subject to severe erosion when unprotected by vegetative cover.

RANGE SITE - No. 62

4. SOILS: (continued)

- b. The significant soils in this site may include one or more of the following soils:

SERIES, TYPES, AND PHASES

Cave (like) loam
Unnamed soils

- c. When the standard soil survey is initiated a complete soil series description will be available in the Soil Survey Descriptive Legend or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Black grama
Blue grama
Sideoats grama
Cane bluestem
Bush muhly
Arizona cottontop

Increasers

Threeawns
Tobosa
Sand dropseed
Mesa dropseed
Sand muhly
Ring muhly
Scratchgrass
Fluffgrass
Burrograss
Whiplash pappusgrass
Wright Eriogonum
Common winterfat
Chamiza
Wolfberry
Mormon tea
Littleleaf sumac
Broom snakeweed
Cactus
Seaptree yucca
Loco
Senna

Invaders

Mesquite
Creosotebush

RANGE SITE - No. 62

5. POTENTIAL VEGETATION: (continued)

- b. The decreasers make up 60 percent of the vegetation and the remainder may be increasers. There may be 20 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is 500 to 850 pounds per acre. *
- d. Herbage covers 20 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

The area adjacent to Hurley and Silver City Airport in Grant County.

* Based on estimates only.

RANGE CONDITION GUIDE

#62

Range Site Name Shallow Upland (WP-3)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|---------------------|------------------------------------|----------------|--------------|
| | (Count all percent) | (Count no more than percent shown) | % By Wt. | (Count None) |
| 1 | Black grama | Sand muhly | 5 | Mesquite |
| 1 | Blue grama | Ring muhly | 5 | Creosotebush |
| 1 | Sideoats grama | Chamiza | 5 | |
| 3 | Cane bluestem | Wright Briogonum | 5 | |
| 3 | Bush muhly | Tobosa | 10 | |
| 3 | Arizona cottontop | Sand dropseed | 10 | |
| 4 | Vine-mesquite | Mesa dropseed | 10 | |
| | | Threeawns | 15 | |
| | | Common winterfat | 20 | |
| | | Scratchgrass | T | |
| | | Fluffgrass | T | |
| | | Burrograss | T | |
| | | Whiplash pappusgrass | T | |
| | | Wolfberry | T | |
| | | Longleaf Ephedra | T | |
| | | Skunkbush sumac | T | |
| | | Broom snakeweed | T | |
| | | Cactus | T | |
| | | Soaptree yucca | T | |
| | | Loco | T | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 20 | 15 | 10 | Any |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 500 | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-1)

TG Section II-E

RANGE SITE - No. 63

1. RANGE SITE NAME: Shallow Upland (SD-1)

2. CLIMATE:

- a. Average annual precipitation is 10 inches, about 60 percent of which falls in the form of rain during the principal growing season, extending from July through September. Winter moisture is received in the form of light rains or snow. Snowfall may attain depths of up to six or 8 inches but ordinarily such amounts do not remain on the ground for extended lengths of time.
- b. Period of greatest wind is during the spring, lasting from late February through June. During this period, winds of high velocities may be experienced and site damage may occur if a good protective vegetative cover is not present. Winds occurring at the season of least precipitation and the beginning of growth of some species of minor importance add to making this an extremely critical period for plant cover development.
- c. During December through March brief cold periods during which temperatures may dip to -10°F may be experienced. Summer temperatures during June, July, and August may reach the high 90's.

3. TOPOGRAPHY AND ELEVATIONS:

Topography for this site varies from flat to undulating slopes and includes moderate slopes up to 10 percent. Terrain is usually smooth in character but occasionally choppy. Elevation range is 4,500 feet to 5,500 feet.

4. SOILS:

- a. Soils are shallow, less than 12 inches in depth overlaying sandstone, limestone, acid igneous rocks or a consolidated layer of caliche. Surface textures are loamy. Water intake rates are variable but usually rapid but water-holding capacities are low.
- b. Typical soils included in this site include the following:

Cascajo soils (less than 12 inch depth)

RANGE SITE - No. 63

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Black grama
Sideoats grama
Blue grama
Porter's muhly
Hairy grama
Plains bristlegrass
Chamise
Winterfat
New Mexico feathergrass
Texas timothy
Little bluestem

Increasers

Three-awn
Fluffgrass
Pappusgrass
Tobosa
Galleta
Dyssodia spp.
Frankenia spp.
Desert zinnia
Yucca
Cholla
Prickly pear
Ring muhly
Mormon tea
Apache plume
Tridens spp.

Invaders

Burrograss

- b. Principal decreaser plants of major grazing importance on this site are black grama, blue grama, New Mexico feathergrass and sideoats grama. Others of lesser importance on the site are bush muhly, plains bristlegrass, Texas timothy, little bluestem, chamiza and winterfat.
- c. Increaser plants include three-awn, galleta, and tobosa, buckwheat, burrograss, yucca, Mormon tea, tridens species, Apache plume, and pappusgrass. Increasers are limited to 50 percent of the plant composition.
- d. Forage yield varies from _____ pounds per acre to _____ pounds per acre.
- e. Total plant vegetative density is 25 percent.

6. SPECIFIC TYPE LOCATION:

Huning Ranch near Commanche Draw and gently sloping upland southwest of Scholle.
Portions of Belen Mesa.

RANGE CONDITION GUIDE

#63

Range Site Name Shallow Upland (SD-1)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|-------------------------|---------------------------------------|-----------|--------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Black grama | Three-awn | 5 | Burrograss |
| 3 | Sideoats grama | Fluffgrass | T | |
| 2 | Blue grama | Pappus grass | T | |
| 4 | Bush muhly | Tobosa) | 10 | |
| 5 | Hairy grama | Galleta) | | |
| 5 | Plains bristlegrass | Dyssodia spp. | T | |
| 4 | Chamiza | Frankenia spp. | T | |
| 4 | Winterfat | Buckwheat | 5 | |
| 3 | New Mexico feathergrass | Desert zinnia | T | |
| 5 | Texas timothy | Ring muhly | T | |
| 5 | Little bluestem | Yucca | 5 | |
| | | Prickly pear | T | |
| | | Cholla | T | |
| | | Mormon tea | 5 | |
| | | Apache plume | 5 | |
| | | Tridens spp. | 5 | |
| | | Other shrubs | 5 | |

Maximum total percent 50

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 25 | 20 | 15 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-2)

TG Section II-E

RANGE SITE - No. 64

1. RANGE SITE NAME: Shallow Upland (SD-2)

2. CLIMATE:

- a. Precipitation averages from 8 to 12 inches and ranges from an all time low of 2.9 inches to a record high of 25.7 inches. The greater part occurs during the months of July, August, and September. There are extreme fluctuations from year to year with periodic droughts. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages less than half an inch per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. These high winds in March, April, and May cause extensive erosion on unprotected soils. High temperatures, fairly constant winds, and low humidity cause the average annual evaporation to range up to 107 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during July, August, and September. The growing season of the native warm season plants begins after the last frost, March 29 to April 23, and continues as moisture is available until October 15 to November 12, which are the average dates ending the frost free period. Winters are generally mild; however, there is a recorded low of -10°F. The maximum summer temperature on record is 110°F. Average annual temperatures range from 58°F to 60°F.

3. TOPOGRAPHY AND ELEVATIONS:

The topography is gently rolling to nearly level. Slopes may vary from 1 to 10 percent with the dominant slope 1 to 3 percent. Elevations vary from 4,000 to 5,500 feet above sea level. This site may be broken by the presence of deep to moderately deep dry washes, dry lake beds, and low hills.

RANGE SITE - No. 64

4. SOILS:

- a. The significant soils which characterize this site are loams, sandy clay loams, and silt loams, 10 inches or less in depth. Pockets of deeper soil may be found. A lime layer, usually indurated, affects water movement and root growth. In some instances this condition is beneficial as it causes a perched water table and less of the precipitation is lost through deep percolation. In a deteriorated condition with a low vegetative density this site is susceptible to erosion by wind and water. Water intake rates are medium and moisture holding capacity low.
- b. The significant soils in this site may include one or more of the following soils:

SERIES, TYPES, AND PHASES

Cave (like) loam
Unnamed soils

- c. Soils descriptions may be found in the Soils Handbook, or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Black grama
Bush muhly
Sideoats grama
Blue grama
Hairy grama
Arizona cottontop
Plains bristlegrass
New Mexico feathergrass

Increasers

Creosotebush
Sand dropseed
Fluffgrass
Hairy tridens
Rough tridens
Tobosa
Burrograss
Common winterfat
Chamiza
Wright Eriogonum
Broom snakeweed
Soaptree yucca
Loco
Prickleleaf dogweed
Rocky Mountain zinnia
Condalia
Threeawns

Invaders

Mesquite
American tarbush
Spiny allthorn

RANGE SITE - No. 64

5. POTENTIAL VEGETATION: (continued)

- b. The decreasers make up 60 percent of the vegetation and the remainder may be increasers. There may be 10 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is 350 to 550 pounds per acre. *
- d. Herbage covers from 15 to 20 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

Sec. 10, T 29S, R 14W, on the Hatchet Ranch, 12 miles south of Hatchata, Hidalgo Co., south of Fairview windmill on the Diamond A Ranch, Sierra County.

* Based on limited plot clippings and estimates.

RANGE CONDITION GUIDE

#64

Range Site Name Shallow Upland (SD-2)

| Rating | Decreasers | Increasesers | Max. % | Invaders |
|--------|-------------------------|---------------------------------------|-----------|------------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Black grama | Fluffgrass | 5 | Mesquite |
| 2 | Bush muhly | Hairy tridens | 5 | American tarbush |
| 3 | Sideoats grama | Rough tridens | 5 | Spiny allthorn |
| 4 | Blue grama | Tobosa | 5 | |
| 5 | Hairy grama | Burrograss | 5 | |
| 5 | Arizona cottontop | Sand dropseed | 10 | |
| 5 | Plains bristlegrass | Chamiza | 10 | |
| 5 | New Mexico feathergrass | Common winterfat | 10 | |
| | | Threeawns | 20 | |
| | | Rocky Mountain zinnia | T | |
| | | Zinnia pumila | T | |
| | | Prickleleaf dogwood | T | |
| | | Loco | T | |
| | | Soaptree yucca | T | |
| | | Wright Eriogonum | T | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 15 | 10 | 5 | Any |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 350 | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-3)

TG Section II-E

RANGE SITE - No. 65

1. RANGE SITE NAME: Shallow Upland (SD-3)

2. CLIMATE:

- a. Arid to semi-arid climate with an annual precipitation for this resource area averaging from 11 to 15 inches. The wettest year on record was at Ft. Sumner (41.37 inches) and the driest year was at Carlsbad (2.95 inches). Approximately 75 percent of the annual rainfall occurs from May to October inclusive. June, July, August, and September are normally the months of highest rainfall. Summer rainfall is characterized by torrential thundershowers of high intensity and short duration that produce high runoff from unprotected soils. There are extreme fluctuations in the amount of precipitation from year to year, and periodic droughts have occurred, some lasting for 4 years or longer. More years of below average rainfall can be expected than those above the average precipitation. Winter moisture may occur in the form of rain and/or snow and usually averages less than half an inch per month. When snow occurs, it melts quickly, and snow cover persisting as long as one week is unusual.
- b. Wind velocities in this area are high. February, March, April, and May are characterized by frequent wind storms with velocities in excess of 50 miles per hour causing severe wind erosion on soils unprotected by adequate vegetation. Humidity is low and evaporation is high, averaging from 70 to 85 inches to in excess of 120 inches (from an evaporation pan).
- c. The frost free season of this sub-area ranges from about 187 days at Ft. Sumner in the northern part to 228 days at Carlsbad Caverns in the southern part. The growing season of the native warm season plants begins after the last frost, April 2 to 19 (South to North) and continues as moisture is available until the latter part of October or the first of November ending the frost free period. Winters are characteristically warm and open, with occasional "northers" dropping the temperature to 0°F or lower for short periods of time in about 1/3 of the years on record. Occasional and infrequent temperatures as low as -30°F have occurred. Summers are hot with temperatures of over 105°F occurring frequently from May through September. The annual average temperature varies from 59°F at Roswell to 63°F at Carlsbad.

3. TOPOGRAPHY AND ELEVATIONS:

The topography is gently undulating and occasionally broken by the presence of Loamy Upland, Stony Hills, or Stony Mountain sites. The dominant slopes for this site are around 3 percent. Elevation ranges from 3,100 feet around Jal and Carlsbad areas to 4,200 feet around the Ft. Sumner area. Areas around Lulu, Cornudas Mountains, and small isolated places in the resource area may be up to 5,000 feet in elevation.

4. SOILS:

- a. These are very shallow, medium textured, calcareous soils. At an average depth of 10 inches they are usually underlain by a thick indurated layer of caliche or limestone which is the limiting factor to plant development. Pockets of deeper soil may sometimes be found in depressions. Water intake rates are medium, but water holding capacities are low. These soils, when unprotected by vegetation, are very susceptible to both water and wind erosion.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Ector stony loam
Potter stony loam
Kimbrough stony loam

- c. Complete Soil Series Descriptions are available in the Soil Survey Descriptive Legends or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Black grama
Bush muhly
Vine-mesquite
Sidecats grama
Hairy grama
Blue grama

Increasers

Silver bluestem
Threeawns
Tobosa
Skunkbush sumac
Creosotebush
Mesquite
Dropseeds

Invaders

American tarbush
Annuals
Fluffgrass

RANGE SITE - No. 65

5. POTENTIAL VEGETATION: (continued)

Decreasers

Increasers

Invaders

Burrograss
Prickly pear
Apacheplume
Longleaf Ephedra
Little soapweed
Common winterfat
Javelina brush
Muhly species
Spiny allthorn
Broom snakeweed
Hairy tridens
Stemless actinea

- b. The decreaseers make up 70 percent of the vegetation and the remainder is increasers. The potential vegetation is black grama and sideoats grama with smaller percentages of blue grama, bush muhly, hairy grama, tobosa, threeawn, and dropseed species. Javelina brush is a common shrub along with mesquite, creosotebush, and common winterfat which are usually found in traces.
- c. Annual herbage yields based on plot clippings vary from 1,500 pounds per acre in favorable years to 200 pounds in less favorable years when the site is in excellent condition. *
- d. Basal herbage covers 20 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

Center Sec. 13, T 8S, R 26E, in Chaves County.

* Based on limited clipping data and estimates.

RANGE CONDITION GUIDE

#65

Range Site Name Shallow Upland (SD-3)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|---------------------------------------|-----------|------------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Black grama | Silver bluestem | 5 | American tarbush |
| 4 | Bush muhly | Threeawns | 10 | Fluffgrass |
| 5 | Vine-mesquite | Tobosa | 10 | Annuals |
| 1 | Sidecoats grama | Skunkbush sumac | T | |
| 4 | Hairy grama | Creosotebush | 5 | |
| 2 | Blue grama | Mesquite | T | |
| | | Dropseeds | 10 | |
| | | Burrograss | 5 | |
| | | Prickly pear | T | |
| | | Apache plume | 10 | |
| | | Longleaf Ephedra | T | |
| | | Little soapweed | T | |
| | | Hairy tridens | T | |
| | | Stemless Actinea | T | |
| | | Javelina brush | T | |
| | | Broom snakeweed | 5 | |
| | | Muhlenbergia spp. | 5 | |
| | | Common winterfat | 10 | |
| | | Spiny allthorn | T | |

Maximum total percent 30

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 20 | 20 | 10 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 1,500 | | | |
| Unfavorable Years | 200 | | | XX |

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UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--High Plains (HP-1)
Central Plains and Valleys (CP-1)

TG Section II-E

RANGE SITE - No. 66

1. RANGE SITE NAME: Cinder Upland (HP-1, CP-1)

2. CLIMATE:

- a. Annual precipitation averages from 15 to 18 inches. Approximately three-fourths of the annual average occurs during the period April to October inclusive. July and August most commonly receive the highest monthly totals. There are extreme fluctuations from year to year with periodic drouths that have lasted as long as 4 years. Annual rainfall in the area has fluctuated from a high of 37.65 inches to a low of 5.54 inches in a 10 year period. Summer rainfall is characterized by torrential thundershowers producing high runoff from unprotected soils. Winter precipitation, which averages about 1/2 inch per month, usually occurs in the form of snow.
- b. Wind velocities for the area are high, averaging about 4.5 miles per hour on an annual basis. Spring windstorms occur frequently with velocities in excess of 45 miles per hour causing severe wind erosion on soils inadequately protected by vegetation. Humidity is low and evaporation high, averaging 60 inches or more during the period April through October.
- c. The frost free season ranges from about 135 days at the higher elevations to about 165 days at lower elevations. The principal growing season for native plants occurs from May 15 to September 15 if sufficient moisture is available. Sub zero temperatures will usually occur every year with minimums of -20°F not uncommon. Summers are characterized by warm days and cool nights, with maximum temperatures seldom reaching 100°F. The percentage of sunshine is high, averaging about 80 percent of the possible amount.

3. TOPOGRAPHY AND ELEVATIONS:

This site occurs on the gently sloping footslopes of volcanic cinder cones. Slopes range from nearly level to about 10 percent. Elevations range from approximately 5,500 to 7,500 feet.

4. SOILS:

- a. The soils of this site are shallow over various sized lightweight volcanic fragments (Scoria).

RANGE SITE - No. 66

4. SOILS: (continued)

b. Significant soils of this site are:

Badera gravelly loam

c. Detailed descriptions of these soils series may be found in the descriptive legend or State Soil Series Handbook.

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Little bluestem
Sideoats grama
Big bluestem
Indian grass
Needle and thread
Western wheatgrass
Spike muhly

Increasers

Blue grama
Wolf tail
Galleta
Three-awns
Yucca

Invaders

Ring grass
Snakeweed
Ragweed
Hairy aster
Gumweed
Senecio

b. Climax dominants which make up about 60 percent of the vegetation are little bluestem, sideoats grama, big bluestem, indian grass, and needle and thread. Associated with the climax dominants are blue grama, hairy grama, and perennial three awns. About 10 percent of the composition consists of fringed sage and yucca.

c. Annual herbage yield of this site based on plot clippings is 700 pounds to 1,500 pounds per acre.

d. Ground cover: Approximately 40 percent.

6. SPECIFIC TYPE LOCATION:

Near the southeast corner of Capulin National Monument, Union County, New Mexico.

RANGE CONDITION GUIDE

#66

Range Site Name Cinder Upland (CP-1)

| Rating | Decreasers | Increasers | Max. % By Wt. | Invaders |
|--------|---------------------|---------------------------------------|------------------------|--------------|
| | (Count all percent) | (Count no more than percent shown) | | (Count None) |
| 2 | Little bluestem | Blue grama | 30 | Ring grass |
| 2 | Sideoats grama | Wolf tail | 5 | Snakeweed |
| 3 | Big bluestem | Galleta grass | 5 | Ragweed |
| 5 | Indian grass | Three-awn | T | Hairy aster |
| 5 | Needle and thread | Small soapweed | 5 | |
| 5 | Western wheatgrass | | | |
| 5 | Spike muhly | | | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 35 | 35 | 20 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Western Plateaus and Mesas (WP-2)

TG Section II-E

RANGE SITE - No. 67

1. RANGE SITE NAME: Cinder Upland (WP-2)

2. CLIMATE:

- a. This site is found in similar locations to the loamy upland (WP-2) range site from a climatic standpoint. Micro-climatic differences are present due principally to slope and exposure. Average annual precipitation for this site ranges from around 12 to 14 inches most of which occurs during July, August, and September. Winter moisture, both in the form of rain and snow, determines early spring production of some cool season growers that are present. Heat absorbent qualities of the dark cinders hastens snow melt and makes for desirable winter use. The site is also efficient as a user of light showers, since there is rapid infiltration of moisture received.
- b. Wind action on the site during the period extending from February to July may be an important factor in the desiccation of this moisture, particularly on western, southern, and southwestern exposures. Lee-ward exposures may be somewhat more mesic.
- c. First frost in the fall is likely to occur the latter part of September, with the last frost in the spring occurring late in May. The site has a growing season of approximately 120 days. About half of the annual precipitation is received during the summer months. Summer temperatures may reach the 100°F mark, while winter low temperatures of -29°F are possible. Heavy snows and accompanying low temperatures for prolonged periods during January and February result in considerable livestock stress. The site supports both cool season and warm season growers, but production is very sporadic. Annual production fluctuates greatly depending on time and amount of precipitation. Runoff is usually negligible.

3. TOPOGRAPHY AND ELEVATIONS:

This site ranges topographically from ordinary upland slopes to almost flat terrain. The site occurs usually associated with Cinder Hills (WP-2) range site and is separated from it at a slope break of 20 percent. Elevation range is from 6,000 to 7,500 feet.

RANGE SITE - No. 67

4. SOILS:

- a. Soils of this site are derived from volcanic cinders in varying stages of decomposition. These soils, which are gravelly loams, are typically underlain by cinders at depths varying from 10 to 30 inches. Coarse volcanic material may be found at the higher elevations where this site occurs in proximity to Cinder Hills (WP-2). Soils take up water rapidly. Little or no erosion is present even under moderate storm conditions.
- b. Significant soils of this site are: Bondera gravelly loam.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|--------------------------|-------------------|-----------------|
| Blue grama | Galleta | Spiney muhly |
| Sideoats grama | Three-awn | Pingue |
| New Mexico feathergrass- | Ring grass | Oakbrush |
| Western wheatgrass | Fluffgrass | Cholla |
| Junegrass | Snakeweed | Prickly pear |
| Bottlebrush squirreltail | Rabbitbrush | |
| Indian ricegrass | Yucca | |
| Winterfat | Sand dropseed | |
| | Mesa dropseed | |
| | Horsebrush | |

- b. Decreasers make up approximately 60 percent of the total plant composition. Galleta may make up 30 percent of the composition.
- c. In top condition this site is dominated by perennial bunchgrasses with a sprinkling of browse species. Blue grama, sideoats grama, and galleta are important constituents. Smaller amounts of New Mexico feathergrass, western wheatgrass, Junegrass, bottlebrush squirreltail, chamise, and apache plume are present. Three-awn and sand or mesa dropseed may attain 15 percent of the total plant composition. Pinon pine and juniper may occur as invaders of this site and oakbrush may be present on the shaded exposures.
- d. Forage yield varies from _____ to _____ pounds per acre.
- e. Density of ground cover is 30 percent minimum, and litter is present both as stubble and fresh mulch.

6. SPECIFIC TYPE LOCATION:

Near Red Hills, west of Quemado, and Hubbell Ranch, vicinity of Salt Lake, New Mexico.

RANGE CONDITION GUIDE

#67

Range Site Name Cinder Upland (WP-2)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|--------------------------|------------------------------------|-----------|--------------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Blue grama | Three-awn | 5 | Kentucky bluegrass |
| 4 | Black grama | Ring muhly | T | Sandhill muhly |
| 2 | Sideoats grama | Galleta | 30 | Pingue |
| 4 | New Mexico feathergrass | Fluffgrass | T | Oakbrush |
| 3 | Western wheatgrass | Snakeweed | T | Cholla |
| 5 | Chamiza | Rabbitbrush | T | Prickly pear |
| 5 | Apache plume | Yucca | 5 | |
| 5 | Prairie junegrass | Sand dropseed) | 10 | |
| 4 | Indian ricegrass | Mesa dropseed) | | |
| 3 | Little bluestem | Horsebrush | 5 | |
| 3 | Spike muhly | | | |
| 3 | Texas timothy | | | |
| 4 | Mountain muhly | | | |
| 5 | Winterfat | | | |
| 5 | Bottlebrush squirreltail | | | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 25 | 20 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area-- Rocky Mountains

TG Section II E

RANGE SITE - No. 68

1. RANGE SITE NAME: Cinder Upland (RM-1)

2. CLIMATE:

- a. The site occurs in the western mountain range with 12 to 16 inches of moisture, most of which occurs as summer rains during July, August, and September.
- b. A dry season in the spring months of April through June with strong winds from the southwest limits vegetative growth before the summer rains begin.
- c. Winter snowfall accounts for early spring moisture. Much of the annual growth occurs in the spring months when the snow melts. Summer growth of vegetation produces most of the forage.

3. TOPOGRAPHY AND ELEVATION:

- a. In the vicinity of Lava Flows and Volcano Craters, the topography ranges from steep volcano craters to moderately steep slopes, averaging 20 percent slopes to 40 percent slopes on the crater deposits. Moisture penetration is so rapid no erosion occurs even when the high intensity thunder shower type rains come in the summer months.
- b. The site occurs at elevations from 6,500 to 8,000 feet.

4. SOILS:

- a. The site is cinder loam deposits of cinders and ash from the volcanic eruption. Deposits range from several hundred feet near the craters becoming thinner with greater distance from the crater. On the fringe area of the slopes, the cinders will be only a few inches in depth. Deposits may be over various formations and topographic features. Fine ash particles in the cinder material greatly increase the moisture holding capacity and make the site a habitat for abundant vegetative growth. Erosion is very light even in poor range condition. These soils have intake rates of about 1-1/4 inches of water to wet a foot of soil.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Bandera gravelly loam

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Mountain muhly
Pine dropseed
Arizona fescue
Spike muhly
Sideoats grama
Bluestem (western) wheat-
grass
Little bluestem
Junegrass
Needleandthreadgrass
Kentucky bluegrass

Increasers

Blue grama
Broom snakeweed
Rubber rabbitbrush
Annual grasses
Annual weeds
Iris
Pinon
Juniper
Gambel oak
Ponderosa pine

Invaders

Pingue
Loco
Lupine
Whorled milkweed

- b. The decreaseers make up 70 percent of the vegetation and the remainder is increasers. There may be 10 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 35 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#68

Range Site Name Cinder Upland (RM-1)

| Rating | Decreasers (Count all %) | Increasers (Count no more than % shown) | Max. % By Wt. | Invaders (Count none) |
|--------|----------------------------------|-----------------------------------------------|------------------------|--------------------------|
| 1 | Mountain muhly | Blue grama | 20 | Pingue |
| 1 | Pine dropseed | Gambel oak | 10 | Loco |
| 1 | Arizona fescue | Broom snakeweed | T | Lupine |
| 3 | Spike muhly | Rubber rabbitbrush | 5 | Whorled milkweed |
| 3 | Sideoats grama | Annual grasses | T | |
| 3 | Bluestem (western) wheatgrass | Annual weeds | T | |
| 5 | Little bluestem | Iris | T | |
| 3 | Junegrass | Pinon | 5 | |
| 5 | N. M. Needleandthread- grass | Juniper | 5 | |
| 5 | Kentucky bluegrass | Ponderosa pine | T | |

Maximum total percent 30

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 35 | 25 | 15 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--High Plains (HP-2, HP-3)

TG Section II-E

RANGE SITE - No. 69

1. RANGE SITE NAME: SaltFlats (HP-2, HP-3)

2. CLIMATE:

- a. Annual average precipitation for this area averages from approximately 14 to 17 inches. About three-fourths of this amount falls during the period April to October inclusive with July and August usually recording the highest monthly averages. Spring and summer rainfall is characterized by torrential thundershowers of high intensity and short duration, that produce high runoff from unprotected soils. There are extreme fluctuations in the amount of rainfall from year to year. Recurrent droughts lasting from 3 to 4 years are not infrequent. Annual rainfall in the area may range from a high of 40 inches to as low as 6.15 inches. Winter moisture may occur as either rain or snow and usually averages less than 1/2 inch per month.
- b. Wind velocities in this area are high and average about 5.3 miles per hour on an annual basis. The spring months are characterized by frequent wind storms with velocities in excess of 45 miles per hour which cause excessive erosion on soils not protected by a good cover of vegetation. Humidity is low and evaporation is high, usually averaging 75 inches during the period April to October inclusive.
- c. The principal growing season of native vegetation occurs during the period May through September inclusive. The frost free season averages 188 days April 17 to October 22. Summers are hot with maximum temperatures frequently reaching 100°F or more from late May to early September. Winters are characterized by warm sunny days and cold nights with occasional "northers" that may keep temperatures below freezing for several days. Temperatures of 0°F or lower have occurred in about half of the years of record, with -18°F the lowest temperature of record in the area. The percentage of sunshine is high, averaging 80 percent or more of the possible amount in most years.

3. TOPOGRAPHY AND ELEVATIONS:

This site consists of nearly level poorly drained areas adjacent to the larger playa lakes. It occurs at all elevations within the sub-resource area from approximately 3,000 feet to 4,800 feet.

RANGE SITE - No. 69

4. SOILS:

- a. The soils of this site are deep, compact clay loam. They contain considerable salt and frequently have a high water table and poor internal drainage.
- b. Significant soils of this site are:

Church clay loam

- c. Detailed description of this soil may be found in the descriptive legend for Standard Soil Surveys in Curry, Lea, Roosevelt Counties and the southwest Quay area.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Alkali sacaton
Western wheatgrass
Four wing saltbush

Increasers

Inland salt grass
Alkali muhly
Mat muhly
Poverty sumpweed

Invaders

Annual weeds
Barnyard millet
Alkali mallow
Knotweed

- b. The vegetation of this site is confined to salt and alkali tolerant species and it is often dominated by almost pure stands of inland salt-grass.
- c. Total herbage yield of this site = air dry forage per acre 3,000 to 4,000 pounds.
- d.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#69

Range Site Name Salt Flat (HP-2, HP-3)

| Rating | Decreasers | Increasers | Max. % By Wt. | Invaders |
|--------|---------------------|---------------------------------------|------------------------|-----------------|
| | (Count all percent) | (Count no more than percent shown) | | (Count None) |
| 1 | Alkali sacaton | Inland saltgrass | 20 | Annual weeds |
| 3 | Western wheatgrass | Alkali muhly | 10 | Barnyard millet |
| 3 | Fourway saltbush | Mat muhly | T | Alkali mallow |
| | | Poverty sumpweed | T | Knot weed |

Maximum total percent 30

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 40 | 40 | 30 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 4,000 | | | |
| Unfavorable Years | 2,500 | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Central Plains and Valleys (CP-3)

TG Section II-E

RANGE SITE - No. 70

1. RANGE SITE NAME: Salt Flats (CP-3)

2. CLIMATE:

- a. Climate is distinguished by its wide variation both in temperature and precipitation. Average annual precipitation is approximately 14 inches but varies from 5 inches to 23 inches. Rainfall is greatest during the summer months of July, August, and September, and storms are of the torrential thunderstorm type. Spring moisture is received from more general storms. Winters may be quite severe, particularly during January and February, and although snowfall amounts are not ordinarily heavy, prolonged sub-zero temperatures along with moderate snow depths may cause livestock stress.
- b. Spring winds occurring from February through June may constitute a deterrent to plant growth and seedling establishment.
- c. Summer temperatures may exceed 100°F for brief periods but there may be several consecutive days of temperature readings in the high 90's. The growing season extends from May 13 to October 8 for a period of 148 days. Cool season range forage is able to make good production during years of above normal winter precipitation.

3. TOPOGRAPHY AND ELEVATIONS:

This site occurs on flat to gently sloping even plains. Elevations range is 6,000 to 6,300 feet.

4. SOILS:

- a. Soils are deep, very fine sandy loams to loams, and are salt affected. Some of the soils are built up of lake sediments. Water intake rates are moderate to slow but water-holding capacity is high.

b. Soils found on this site include the following:

- * Chilili very fine sandy loam
- * Yrisarri loam
- Lacustrine deposits
- Manwood loam
- Miera loam, saline
- Harvey fine sand loam, saline
- Miera loam
- Miera loam, thick solum
- Reeves silt loam, shallow

* By a Soil Series name.

RANGE SITE - No. 70

4. SOILS: (continued)

- c. Complete series descriptions will be found in Standard Soil Survey for Torrance County, New Mexico.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|----------------------|-------------------|-----------------|
| Alkali sacaton | Suaeda | Ring grass |
| Vine mesquite | Buckwheat | Snakeweed |
| Western wheatgrass | Rabbitbrush | Loco |
| Sedge | Greasewood | |
| Squirreltail | Mat muhly | |
| Blue grama | Wire grass | |
| Winter fat | Three-awn | |
| Plains bristlegrass | Saltgrass | |
| Chamise | Buffalo grass | |
| Nuttall alkali grass | Galleta | |
| Mallow | Dropseeds | |
| | Fringed sage | |
| | Burro grass | |
| | Fluffgrass | |
| | Iodine bush | |

- b. This site supports a good stand of perennial grasses, dominated by alkali sacaton. Vine mesquite occurs as an understory occasionally. Blue grama, a desirable decreaser species on this, occupies a relatively small percentage of the total plant composition. Western wheatgrass and chamise are present in amounts up to approximately 20 percent and 5 percent respectively. Plains bristlegrass, sedges, squirreltail, and winterfat are decreasers species that are present in small amounts when this site is in high condition. Where the site is somewhat higher in salts, suaeda, Iodine bush, greasewood, and salt grass occur in limited amounts. Galleta, buckwheats, burrograss, mat muhly and wiregrass are present as possible important increaser species.
- c. Total forage yield on this site varies from 1,400 pounds per acre in good condition up to 5,500 pounds in excellent condition.
- d. Optimum density of ground cover is approximately 35 percent.

6. SPECIFIC TYPE LOCATION:

Jack Dean Ranch near Willard, New Mexico, and area near highway approximately 2 miles south of Estancia.

RANGE CONDITION GUIDE

#70

Range Site Name Salt Flats (CP-3)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|--------------------------|------------------------------------|-----------|--------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Alkali sacaton | Seepweed | T | Ring grass |
| 2 | Vine mesquite | Buckwheat | 5 | Snakeweed |
| 3 | Western wheatgrass | Rabbit brush | T | Loco |
| 5 | Sedge | Greasewood | T | |
| 5 | Bottlebrush squirreltail | Mat muhly | 5 | |
| 2 | Blue grama | Wire grass | 5 | |
| 4 | Winterfat | Three-awn | T | |
| 5 | Plains bristlegrass | Salt grass | 5 | |
| 4 | Chamiza | Buffalo grass | 5 | |
| 5 | Nuttall alkaligrass | Galleta | 15 | |
| 5 | Mallow | Dropseeds | 5 | |
| | | Fringed Sage | T | |
| | | Burrograss | 5 | |
| | | Fluffgrass | T | |
| | | Iodine bush | T | |

Maximum total percent 35

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 35 | 30 | 25 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|-------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 5,500 | | | |
| Unfavorable Years | | 1,400 | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Northern Desert Valleys and Mesas (ND)
Southern Desert Valleys and Plains (SD-1)

TG Section II E

RANGE SITE - No. 71

1. RANGE SITE NAME: Salt Flats (ND, SD-1)

2. CLIMATE:

- a. The average annual rainfall in the Northern Desert Land Resource Area ranges from 6-1/2 to 10 inches. The smaller amounts occur in the San Juan Valley of the Northern Desert Area. Approximately one-half of the moisture occurs in the summer months of July, August, and September in high intensity thunder showers over a short period of time. About one-third of the moisture is the midwinter snowfall.
- b. Strong early spring winds will evaporate the small amount of winter moisture that falls before the growing season.
- c. The major growing season is in the summer months when the precipitation comes. Many of the species common to the site will produce forage when winter and spring moisture is adequate. Frost-free period will average 140 days with a growing season of 163 days between the middle of May to the middle of October. Moisture is the limiting factor to the forage production.

3. TOPOGRAPHY AND ELEVATION:

- a. This site occurs throughout the resource area on open, flat to moderately sloping areas. Maximum slopes for this site are 3 percent. A series of natural lakes may occur intermittently throughout the site. The site includes all exposures, usually a uniform slope extends throughout the site and may be broken by intermitting arroyos. Occasionally low hills or knobs may break the flat to moderate slopes characteristic to the site.

- b. Elevation ranges from 4,000 to 6,500 feet.

4. SOILS:

- a. The soils are typically deep, medium to fine-textured. Shallow and very shallow, moderately fine-textured soils over shale are included. Water intake rate is very slow. Surface crusting and sealing are common. High runoff and deep vertical gullies are associated with this site. Water penetration is slow and the salinity of these soils further render these soils droughty. High exchangeable sodium and high soluble salts make only salt and sodium-tolerant species adaptable to this site.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Unnamed soils

5. POTENTIAL VEGETATION

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|--------------------------------|-------------------|-----------------|
| Alkali sacaton | Black sagebrush | Pingue |
| Galleta | Greasewood | Loco |
| Chamiza | Shadscale | |
| Indian ricegrass | Mat muhly | |
| Squirreltail | Saltgrass | |
| Bluestem (western) wheat-grass | | |
| Common winterfat | | |

- b. The decreaseers make up 55 percent of the vegetation and the remainder is increasers.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 25 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#71

Range Site Name Salt Flats (ND, SD-1)

| Rating | Decreasers (Count all %) | Increasers (Count no more than % shown) | Max. % By Wt. | Invaders (Count none) |
|--------|----------------------------------|-----------------------------------------------|------------------------|--------------------------|
| 1 | Alkali sacaton | Black sagebrush | 20 | Pingue |
| 3 | Galleta | Greasewood | 5 | Loco |
| 1 | Chamiza | Shadscale | 10 | |
| 5 | Indian ricegrass | Mat muhly | 5 | |
| 5 | Squirreltail | Saltgrass | 5 | |
| 2 | Bluestem (western) wheatgrass | | | |
| 4 | Common winterfat | | | |

Maximum total percent 45

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 25 | 15 | 10 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area-Western Plateaus and Mesas (WP-1, WP-2)

TG Section II E

RANGE SITE - No. 72

1. RANGE SITE NAME: Salt Flats (WP-1, WP-2)

2. CLIMATE:

- a. Precipitation varies from 10 to 15 inches per year. The major portion falls as rain in the months of July, August, and September. Rainfall comes generally as high intensity thunder showers and runoff may be high if vegetative cover is poor. Some spring moisture is received, but amounts of winter moisture are quite light. June is ordinarily the driest month for the growing season.
- b. Windy spring weather is experienced from February to June.
- c. The growing season averages 130 to 140 days. Little forage growth is expected until July when the summer rains usually start. Snowfall may be moderately heavy some years in the upper elevations of the site. Early or late winter moisture in the form of light rain accounts for a very minor part of the moisture and temperatures are too cold for any appreciable amount of vegetative growth.

3. TOPOGRAPHY AND ELEVATION:

- a. This site occurs throughout the resource area on open, flat to moderately sloping areas. Maximum slopes for this site are 3 percent. A series of natural lakes may occur intermittently throughout the site. The site includes all exposures. Usually a uniform slope extends throughout the site and may be broken by intermitting arroyos. Occasionally low hills or knobs may break the flat to moderate slopes characteristic to the site.
- b. Elevation ranges from 5,000 to 7,000 feet.

4. SOILS:

- a. Deep, fine-textured clay to silty clay loams. Water intake rate is very slow. Surface crusting and sealing are common. High runoff and deep vertical gullies are associated with this site. Water holding capacity is high, but these soils do not readily yield the water to the plants. High pH and total soluble salts make only salt-tolerant species adaptable to this site.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Puerco clay, sodic phase
Ladrillo clay, sodic phase
Billings silt loams and silty clay loams, sodic phase

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|--------------------------------|--------------------|-----------------|
| Sacaton | Shadscale | Salt cedar |
| Alkali sacaton | Saltgrass | Pingue |
| Bluestem (western) wheat-grass | Mat muhly | Loco |
| Galleta | Greasewood | |
| Blue grama | Rubber rabbitbrush | |

- b. The decreaseers make up 70 percent of the vegetation and the remainder is increasers.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- c. Basal herbage covers 30 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#72

Range Site Name Salt Flats (WP-1, WP-2)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|----------------------------------|------------------------------|----------------|--------------|
| | (Count all %) | (Count no more than % shown) | % By Wt. | (Count none) |
| 3 | Sacaton | Shadscale | 10 | Salt cedar |
| 1 | Alkali sacaton | Saltgrass | 5 | Pingue |
| 2 | Bluestem (western) wheatgrass | Mat muhly | 5 | Loco |
| 3 | Galleta | Greasewood | 5 | |
| 3 | Blue grama | Rubber rabbitbrush | 5 | |

Maximum total percent 30

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 20 | 10 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-2)

TG Section II-E

RANGE SITE - No. 73

1. RANGE SITE NAME: Salt Flats (SD-2)

2. CLIMATE:

- a. Average annual precipitation for this site is approximately 10 inches and most of this amount is received during the hot summer months of July, August, and September. Storms are usually of short duration and intense. Precipitation is extremely variable from year to year with lows of around 3-1/2 inches being recorded and highs of around 20 inches appearing on official weather records.
- b. Spring winds may be a deterrent to plant development on this site. High winds in excess of 60 miles per hour may be experienced, usually during the period February through June. At this period soil moisture suffers severe depletion.
- c. Growing season is approximately 210 days, extending from early April to early November. With favorable winter moisture forage resources may be considerably augmented by good growth of annuals although their production is ordinarily not as great on this site as on upland sites. Few cool season growers are present on the site and forage herbage growth is made with the advent of summer rains and high daytime temperatures. If rains are late, a considerable amount of forage may be produced even after September 1. Summer daytime temperatures are ordinarily quite high and humidity low. Temperature extremes of around 110°F may occur. Winter temperatures of -9°F have been recorded.

3. TOPOGRAPHY AND ELEVATIONS:

This site is usually flat or gently sloping not to exceed 2 percent and may receive some flooding from surrounding upland sites or from outwash from an intruding floodplain site. Elevation range is from 4,000 to 5,000 feet.

4. SOILS:

- a. Soils are deep to shallow, medium to moderately fine textured in the surface and moderately to slowly permeable in the subsoil. Soils contain varying amounts of salt and alkali. Salt accumulations are inhibitory to certain plant species but the most salt tolerant species persist.

RANGE SITE - No. 73

4. SOILS: (continued)

b. Typical soils of this site include the following:

Antelope Springs (like) silt loam, sodium affected
Gothard sandy clay loam, sodium affected
Gothard silty clay loam, sodium affected
Gothard silt loam, sodium affected
Cottonwood loam, saline phase
Reeves loam, saline
Gothard loam, severely sodium affected
Hondale silty clay loam, sodium affected
Mimbres silty clay, severely sodium affected
Mimbres silty clay loam, sodium affected

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|---------------------|-------------------|-----------------|
| Alkali sacaton | Seepweed | Mesquite |
| Vine mesquite | Iodine bush | Tarbush |
| Chamiza | Rayless goldenrod | Cresotebush |
| Squirreltail | Inland saltgrass | |
| Sacaton | Tobosa | |
| Plains bristlegrass | Burro grass | |
| Silver beardgrass | Three-awn | |
| Black grama | Fluffgrass | |
| Dropseeds | Hoffman seggia | |
| Saltbush | | |

b. Alkali sacaton, vine mesquite, small saltbush, and chamise comprise 70 percent of the composition of this site. Since the site exhibits varying degrees of salinity, other species such as giant sacaton, plains bristlegrass, silver beardgrass and tobosa may be found on specific localities. These species are not typically found, however, except as inclusions. On the saltier portions of this site iodine bush, seep weed, greasewood and Atriplex species are found to be in dominance. Other species present on this site include: Saltgrass, squirreltail, wild pea, burrograss, three-awn, aplopappus spp., and dropseeds. These species do not exceed 30 percent of the total plant composition. Col-denia is present on the site where gypsum layers are present. Mesquite, salt cedar and black brush have been observed to invade this site.

RANGE SITE - No. 73

5. POTENTIAL VEGETATION: (continued)

- c. Annual forage yields fluctuate from _____ pounds per acre to _____ pounds per acre.
- d. Ground cover is approximately 25 percent when this site is in top condition.

6. SPECIFIC TYPE LOCATION:

Area west and north of Columbus, New Mexico.

Area 13 miles east of Deming.

Area across Highway 70 from Holloman Air Force Base at 10 mile post.
Road Forks west of Lordsburg and Playas Lake area, south of Playas,
between Animas and Hachita.

RANGE CONDITION GUIDE

#73

Range Site Name Salt Flats (SD-2)

| Rating | Decreasers | Increasers | Max. % By Wt. | Invaders |
|--------|--------------------------|---------------------------------------|------------------------|---------------|
| | (Count all percent) | (Count no more than percent shown) | | (Count None) |
| 1 | Alkali sacaton | Seepweed | 5 | Mesquite |
| 2 | Vine-mesquite | Iodine bush | 5 | Tarbush |
| 3 | Chamiza | Rayless goldenrod | T | Creosote bush |
| 5 | Bottlebrush squirreltail | Inland saltgrass | 20 | Saltcedar |
| 4 | Sacaton | Tobosa | 25 | |
| 5 | Plains bristlegrass | Burrograss | 5 | |
| 5 | Silver beardgrass | Three-awn | 5 | |
| 5 | Black grama | Fluffgrass | T | |
| 5 | Dropseeds | Indian rushpea | T | |
| 3 | Saltbush | | | |

Maximum total percent 30

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 25 | 20 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-3)

TG Section II-E

RANGE SITE - No. 74

1. RANGE SITE NAME: Salt Flats (SD-3)

2. CLIMATE:

- a. Arid to semi-arid climate with an annual precipitation for this resource area averaging from 11 to 15 inches. The wettest year on record was at Ft. Sumner (41.37 inches) and the driest year was at Carlsbad (2.95 inches). Approximately 75 percent of the annual rainfall occurs from May to October inclusive. June, July, August, and September are the months of highest rainfall usually. Summer rainfall is characterized by torrential thundershowers of high intensity and short duration that produce high runoff from unprotected soils. There are extreme fluctuations in the amount of precipitation from year to year, and periodic droughts have occurred, some lasting for 4 years or longer. More years of below average rainfall can be expected than those above the average precipitation. Winter moisture may occur in the form of rain and/or snow and usually averages less than half an inch per month. When snow occurs, it melts quickly, and snow cover persisting as long as one week is unusual.
- b. Wind velocities in this area are high. February, March, April, and May are characterized by frequent wind storms with velocities in excess of 50 miles per hour, causing severe wind erosion on soils unprotected by adequate vegetation. Humidity is low and evaporation is high, averaging from 70 to 85 inches to in excess of 120 inches (from an evaporation pan).
- c. The frost free season of this sub-area ranges from about 187 days at Ft. Sumner in the northern part to 228 days at Carlsbad Caverns in the southern part. The growing season of the native warm season plants begins after the last frost, April 2 to 19 (South to North) and continues as moisture is available until the latter part of October or the first of November ending the frost free period. Winters are characteristically warm and open, with occasional "northers" dropping the temperature to 0°F or lower for short periods of time in about one-third of the years on record. Occasional and infrequent temperatures as low as -30°F have occurred. Summers are hot with temperatures of over 105°F occurring frequently from May through September. The annual average temperature varies from 59°F at Roswell to 63°F at Carlsbad.

3. TOPOGRAPHY AND ELEVATIONS:

Topography is level to gently undulating with slopes of 1 to 5 percent. The average slope is 1 percent. Elevation ranges from 3,000 feet around Jal and Carlsbad areas to 4,200 feet around the Fort Sumner area.

RANGE SITE - No. 74

4. SOILS:

- a. The soils of this site are very shallow to deep over gypsum and show evidence of being saline. The soils occur in the alluvial fill of the Pecos River and are influenced by transported saline triassic parent material. The surface textures are loam, silt loam, and silty clay loams. Nearly all of these soils are underlain by gypsum. Visible salts are present in the deeper soils but the salts are not visible in the very shallow soils over gypsum.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Reeves loam, saline
Reagan loam, saline
Cottonwood loam, saline

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legend or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Alkali sacaton
Common reed
Inland saltgrass
Switchgrass
Fourwing saltbush

Increasers

Sueda
Goldenrods
Sedges
Rushes

Invaders

Mesquite
French tamarisk
Annuals

- b. The decreaseers make up 85 percent of the vegetation and the remainder may be made up of increasers.
- c. Annual herbage yields of this site based on plot clippings vary from 2,000 pounds per acre in favorable years to 400 pounds per acre in less favorable years when the site is in excellent condition. *
- d. Herbage covers 30 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

Sec. 13, T 10S, R 24E in Chaves County.

* Based on limited clipping data and estimates.

RANGE CONDITION GUIDE

#74

Range Site Name Salt Flats (SD-3)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|---------------------------------------|-----------|-----------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Alkali sacaton | Sueda | | Mesquite |
| 3 | Inland saltgrass | Goldenrods | 5 | French tamarisk |
| 5 | Switchgrass | Sedges | T | Annuals |
| 5 | Fourwing saltbrush | Rushes | 10 | |
| 5 | Common reed | | 10 | |

Maximum total percent 15

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 25 | 15 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 2,000 | | | |
| Unfavorable Years | 400 | | | |

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E.C.S.

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--High Plains (HP-2)
Central Plains and Valleys (CP-2)

TG Section II-E

RANGE SITE - No. 75

1. RANGE SITE NAME: Red Shale (HP-2, CP-2)

2. CLIMATE:

- a. Annual average precipitation for this area averages from approximately 14 to 17 inches. About three-fourths of this amount falls during the period April to October inclusive with July and August usually recording the highest monthly averages. Spring and summer rainfall is characterized by torrential thundershowers of high intensity and short duration that produce high runoff from unprotected soils. There are extreme fluctuations in the amount of rainfall from year to year and recurrent droughts lasting from 3 to 4 years are not infrequent. Annual rainfall in the area may range from a high of 40 inches to as low as 6.15 inches. Winter moisture may occur as either rain or snow and usually averages less than 1/2 inch per month.
- b. Wind velocities in this area are high and average about 5.3 miles per hour on an annual basis. The spring months are characterized by frequent windstorms with velocities in excess of 45 miles per hour which cause excessive erosion on soils not protected by a good cover of vegetation. Humidity is low and evaporation is high, averaging 75 inches during the period April to October inclusive.
- c. The principal growing season of native vegetation occurs during the period May through September inclusive. The frost free season averages 188 days April 17 to October 22. Summers are hot with maximum temperatures frequently reaching 100°F or more from late May to early September. Winters are characterized by warm sunny days and cold nights, with occasional "northers" that may keep temperatures below freezing for several days. Temperatures of 0°F or lower have occurred in about half of the years of record with -18°F the lowest temperature of record in the area. The percentage of sunshine is high, averaging 80 percent or more of the possible amount in most years.

3. TOPOGRAPHY AND ELEVATIONS:

This site consists of sloping areas of alluvial and colluvial soils along the foot of mesas and Breaks in the plains area. Slopes range from 2 percent upward to approximately 10 percent. They occur at elevations ranging from 3,200 feet upward to approximately 5,000 feet.

RANGE SITE - No. 75

4. SOILS:

a. The soils of this site are formed from outwash deposits originating from red bed materials. They usually contain some gravel and rock fragments on the surface and throughout the profile. These soils are strongly calcareous to the surface.

b. Significant soils of this site are:

Ranier silt loam
Hassell silt loam

c. Detailed descriptions of this soil may be found in the legends for Standard Soil Surveys.

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Alkali sacaton
Blue grama
White tridens
Western wheatgrass
Chamise

Increasers

Tobosa grass
Galleta grass
Buffalo grass
Mat muhly
Cholla cactus

Invaders

Mesquite
Juniper
Prickly pear
Ring muhly
Annuals
Three-awns

b. About 65 percent of the vegetative cover is made up of decreasing species.

c. Herbage yields: Data not available.

d. Ground cover: Approximately 35 percent

6. SPECIFIC TYPE LOCATION:

Sec. 19-20, T S N Rg. 27E.

RANGE CONDITION GUIDE

#75

Range Site Name Red Shale (HP-2, HP-3, CP-2)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|---------------------------------------|-----------|-----------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Alkali sacaton | Tobosa grass) | 25 | Mesquite |
| 3 | Blue grama | Galleta grass) | | Juniper |
| 5 | White tridens | Buffalo grass | 5 | Prickly pear |
| 5 | Western wheatgrass | Mat muhly | 5 | Ring muhly |
| 5 | Chamize | Cholla cactus | T | Three-awns |
| | | | | Broom snakeweed |

Maximum total percent 35

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | | | | |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Central Plains and Valleys (CP-2, CP-3)

TG Section II-E

RANGE SITE - No. 76

1. RANGE SITE NAME: Gyp Upland (CP-2, CP-3)

2. CLIMATE:

- a. Average annual precipitation is approximately 13 inches in the western portion of this area and 16 inches in the northeastern portion. Where the site is common, average annual precipitation is 14 to 15 inches. Annual fluctuation is extreme, however, ranging from approximately 70 percent below average some years up to 150 percent of average on years of maximum precipitation. Precipitation of major importance for range forage growth is received in the spring months and also during July, August, and September. Spring storms are usually general in nature while summer moisture is received during thunderstorm activity, storms being of short duration but quite intense. Heavy summer torrential downpours may result in severe erosion on this site. Winter moisture is received as both rain and snowfall. Snowfall amounts are generally light to moderate, but periodically heavy snowfall and attendant icing conditions may seriously curtail livestock movements over the area. Forage growth may commence on this site in March and extend through October. Key grasses indigenous to this site do not really produce much available forage, however, until May. Rains extending into early fall or through October can usually be of some benefit insofar as range production is concerned.
- b. Typically, the Estacado or Staked Plains climate is characterized by a considerable number of rather strong, spring windstorms. Where this site has been deteriorated, these storms can result in pedestalling of key plants, making them more vulnerable to drought.
- c. Summer temperatures may range up to 108°F while winter minimums of -33°F have been recorded. The site is a home for summer or warm season growers, but cool season growers may be productive when winter moisture is adequate.

3. TOPOGRAPHY AND ELEVATIONS:

This site is characterized by flat to gently rolling or evenly sloping terrain. The site may be variously dissected by drainage patterns but slopes do not exceed 5 percent. Elevation range is from 4,500 feet up to 6,000 feet. The lower elevations occur in the Central Plains (CP-2) sub-resource area, while the higher elevations are found in the west and southern portions of the CP-3 sub-resource area.

4. SOILS

a. Soils are shallow to very shallow with some inclusions of pockets of deeper soils. Surface texture is loamy but tending toward heavy or silt loam. They may be slightly gravelly to stony on the surface. Soils are located over layers of gypsum which may become extruded in places on the site, displaying almost bare or waste areas.

b. Soils found on this site include the following:

Cottonwood silt loam
Reeves silt loam

Soils take water slowly and water-holding capacity is low.

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Black grama
Blue grama
Hairy grama
Sideoats grama
Cane beardgrass
Alkali sacaton
Plains bristlegrass
Chamise
Mormon tea
Hairy tridens
Bush muhly
Needle & thread grass

Increasers

Gyp grama
Gyp dropseed
Coldenia
Tobosa
Burro grass
Fluffgrass
Three-awn

Invaders

Snakeweed
Rayless goldenrod
Rabbitbrush
Mesquite
Wolfberry
Ring grass
Yucca

b. Vegetation consists of alkali sacaton, hairy tridens, blue grama, hairy grama, gyp grama, black grama, coldenia, needle and thread grass, chamise, gyp dropseed, and sideoats grama as dominant species. These species make up approximately 60 percent of the plant composition. Increasers such as tobosa, fluffgrass, and three-awn occur in quite limited amounts. Chamise and Mormon tea are browse species found on this site in minor amounts of the composition. The site is easily damaged and the less palatable species such as gyp grama, gyp dropseed, and coldenia may dominate the area until further deterioration reduces the entire stand. Bare gypsum surfaces may be the end result of such retrogression.

RANGE SITE - No. 76

5. POTENTIAL VEGETATION: (continued)

c. Forage yield varies from _____ pounds per acre to _____ pounds.

6. SPECIFIC TYPE LOCATION:

Along State Highway 3, north of Encino on Bigbee Ranch; Perez Ranch north of Encino; Slean Ranch, south of Clauch; and between Santa Rosa and Puerto de Luna.

RANGE CONDITION GUIDE

#76

Range Site Name Gyp Upland (CP-2, CP-3)

| Rating | Decreasers | Increasers | Max. % By Wt. | Invaders |
|--------|---------------------|---------------------------------------|------------------------|-------------------|
| | (Count all percent) | (Count no more than percent shown) | | (Count None) |
| 2 | Black grama | Gyp grama | 15 | Snakeweed |
| 2 | Blue grama | Gyp dropseed | 15 | Rayless goldenrod |
| 4 | Hairy grama | Coldenia | 5 | Rabbitbrush |
| 4 | Sideoats grama | Tobosa | 10 | Mesquite |
| 4 | Cane beardgrass | Burrograss | T | Wolfberry |
| 3 | Alkali sacaton | Fluffgrass | 5 | Ring muhly |
| 4 | Plains bristlegrass | Three-awn | 5 | Yucca |
| 4 | Chamiza | | | |
| 4 | Mormon tea | | | |
| 3 | Hairy tridens | | | |
| 5 | Bush muhly | | | |
| 3 | Needle and thread | | | |

Maximum total percent 45

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 25 | 20 | 10 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-1)
Western Plateaus and Mesas (WP-2)

TG Section II E

RANGE SITE - No. 77

1. RANGE SITE NAME: Gyp Upland (SD-1, WP-2)

2. CLIMATE:

- a. The precipitation range of this site is extremely variable. Average annual precipitation amounts vary from 4 inches up to 20 inches with the average annual amount equalling close to 12 inches.
- b. Late winter and early spring winds produce a pronounced drying effect on winter soil moisture. This site may be subject to damage by these wind storms through the process of removal of the soil when the site is in the lower condition classes.
- c. The growing season extends for approximately 150 days from May 10 to October 7. Grass makes its grand growth period during the hot summer months of July, August, and September when temperatures reach the 90's and thunderstorm activity may be at its peak. Good growing conditions usually extend through the month of September. The climate for this site is quite often severe during the winter months. Snowfall accounts for less than half of the moisture. Snow may remain on the ground for short periods of time. Dry winters are common during which practically no snow falls and but little rain. These dry winters are reflected in poor forage growth on the cool season growers.

3. TOPOGRAPHY AND ELEVATION:

- a. The site is of very limited extent in the resource areas. Topography varies from level terrain through undulating slopes and up to slopes of 10 percent. The site may be dissected by washes or bottom land sites. These sites are recognized and delineated out where they are of sufficient size to effect management practices.
- b. Elevation of this site ranges from 4,500 feet to 6,500 feet, the higher elevations being located adjacent to the Ladrone Mountains.

4. SOILS:

- a. Very shallow and shallow medium-textured soils underlain by gypsum are typical of the Gyp Upland. Erosion is often severe, especially on the slopes up to 10 percent. Runoff is moderate. These soils are droughty. They are usually saline and strongly calcareous.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Cottonwood loam

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Alkali sacaton
Galleta
Tobosa
Blue grama

Increasers

Burrograss
Poverty threeawn
Ring muhly
Chamiza
Spray muhly

Invaders

Pingue
Loco
Whorled milkweed

- b. The decreaseers make up 75 percent of the vegetation and the remainder is increasers.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers from 15 to 20 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#77

Range Site Name Gyp Upland (WP-2, SD-1)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|----------------|------------------------------|----------------|--------------|
| | (Count all %) | (Count no more than % shown) | % By Wt. | (Count none) |
| 2 | Galleta | Burrograss | 5 | Pingue |
| 2 | Tobosa | Poverty threeawn | 10 | Loco |
| 3 | Blue grama | Ring. muhly | T | Whorled |
| 1 | Alkali sacaton | Chamiza | 10 | milkweed |
| | | Spiny muhly | T | |

Maximum total percent 25

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 20 | 10 | 5 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-2, SD-3)

TG Section II_E

RANGE SITE - No. 78

1. RANGE SITE NAME: Gyp Upland (SD-2, SD-3)

- a. Precipitation averages from 8 to 15 inches and ranges from an all time low of 2.1 inches to a record high of 43 inches. The greater part occurs during the months of June, July, August, and September. There are extreme fluctuations from year to year with periodic droughts. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages less than half an inch per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. These high winds in March, April, and May cause extensive erosion on unprotected soils. High temperatures, fairly constant winds, and low humidity cause the average annual evaporation to range up to 107 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during June, July, August, and September. The growing season of the native warm season plants begins after the last frost, March 29 to April 23, and continues as moisture is available until October 15 to November 15 which are the average dates ending the frost free period. Winters are generally mild; however, there is a recorded low of -30°F . The maximum summer temperature on record is 112°F . Average annual temperatures range from 58°F to 63°F .

3. TOPOGRAPHY AND ELEVATIONS:

The topography is level to gently rolling with slopes from 0 to 10 percent and the average is 2 percent. Elevations vary from 3,000 to 5,500 feet above sea level.

4. SOILS:

- a. Soils in this site are developing in gypsum deposits along the Pecos River and in the Jornada and the Tularosa Basin. About 90 percent of the site is strongly complexed with moderately deep soils over gypsum and soils with only a very thin surface over gypsum. The complex occurs in two patterns. Where a somewhat vague drainage pattern occurs the

4. SOILS: (continued)

very shallow makes up about 40 percent of the area. Where the pattern is a sink-hole type the very shallow makes up about 70 percent of the area. Small areas of deep soil over gypsum may make up to about 15 percent as inclusions. The surfaces are usually loams or in some cases very fine sandy loams and fine sandy loams.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Cottonwood loam
Cottonwood fine sandy loam
Inclusions Reeves loam, Reeves fine sandy loam

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legend, or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Gyp grama
Black grama
Blue grama
Longleaf Ephedra

Increasers

Fluffgrass
Tobosa
Threeawns
Broom snakeweed
Coldenia
Soaptree yucca
Burrograss
Gyp grass
Javelina bush
American tarbush
Stemless actinia

Invaders

Mesquite

- b. The decreaseers make up 60 percent of the vegetation and the remainder is made up of increasers.
- c. Annual herbage yield of this site based on plot clipping is 400 to 950 pounds per acre. *
- d. Herbage covers 15 to 20 percent of the ground surface.

* Based on limited clippings and estimates.

TG Section II-E

RANGE SITE - No. 78

6. SPECIFIC TYPE LOCATION:

Sec. 21, T 9S, R 26E, and NW 1/4 of Sec. 30, T 10S, R 26E in Chaves County.

RANGE CONDITION GUIDE

#78

Range Site Name Gyp Upland (SD-2, SD-3)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|------------------|---------------------------------|-----------|--------------|
| | (Count all %) | (Count no more than % shown) | By Wt | (Count None) |
| 1 | Gyp grama | Threeawn | 5 | Mesquite |
| 3 | Black grama | Goldenia | 5 | Creosotebush |
| 3 | Blue grama | Tobosa | 10 | |
| 5 | Longleaf Ephedra | Gypgrass | 20 | |
| | | Fluffgrass | T | |
| | | Broom snakeweed | T | |
| | | Little soapweed | T | |
| | | Soaptree yucca | T | |
| | | Burrograss | T | |
| | | Javelina bush | T | |
| | | American tarbush | T | |
| | | Stemless Actinia | T | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 15 | 10 | 5 | Any |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 400 | | | |
| Unfavorable Years | | | | |

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UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--High Plains (HP-1)
Central Plains and Valleys (CP-1)

TG Section II-E

RANGE SITE - No. 79

1. RANGE SITE NAME: Gravelly Upland (HP-1, CP-1)

2. CLIMATE:

- a. Annual precipitation averages 15 to 18 inches. Approximately three-fourths of the annual average occurs during the period April to October inclusive. July and August most commonly receive the highest monthly totals. There are extreme fluctuations from year to year with periodic droughts that have lasted as long as 4 years. Annual rainfall in the area has fluctuated from a high of 37.65 inches to a low of 5.54 inches in a 10 year period. Summer rainfall is characterized by torrential thundershowers producing high runoff from unprotected soils. Winter precipitation, which averages about 1/2 inch per month, usually occurs in the form of snow.
- b. Wind velocities for the area are high averaging about 4.5 miles per hour on an annual basis. Spring windstorms occur frequently with velocities in excess of 45 miles per hour, causing severe wind erosion on soils inadequately protected by vegetation. Humidity is low and evaporation high, averaging 60 inches or more during the period April through October.
- c. The frost free season ranges from about 135 days at the higher elevations to about 165 days at lower elevations. The principal growing season for native plants occurs from May 15 to September 15 if sufficient moisture is available. Sub zero temperatures will usually occur every year with minimums of -20°F not uncommon. Summers are characterized by warm days and cool nights with maximum temperatures seldom reaching 100°F. The percentage of sunshine is high, averaging about 80 percent of the possible amount.

3. TOPOGRAPHY AND ELEVATIONS:

This site most commonly occurs at the higher elevations of the resource area adjacent to the Foothills, or flanking the drainage courses, and in the nature of a colluvial foot slope, or occurs as low rounded ridges extending into the more level Plains Upland. Elevations range from approximately 5,000 to 7,000 feet.

4. SOILS:

a. Soils of this site consist of highly stratified outwash material with stratifications of gravelly loam, sandy loam, and gravel. These soils take water rapidly but have poor water-holding capacity and tend to be droughty.

b. Significant soils series are:

Unnamed soils.

c. Detailed descriptions of these soils can be found in the legend for Standard Soil Surveys in Colfax, Harding, and Union Counties.

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Little bluestem
Sideoats grama
Big bluestem
New Mexico feathergrass
Needle and thread
Spike muhly

Increasers

Blue grama
Oak
Skunkbush
Fringed sagebrush
Three-awns
Wolftail
Silver bluestem

Invaders

Sleepy grass
Annual weeds

b. This site usually contains a significant amount of woody species and up to 10 percent of these may occur in excellent condition.

c. Adequate data on yields are lacking.

d. Ground cover - 30 percent.

6. SPECIFIC TYPE LOCATION:

Along the south foot slopes of Tooth of Time Ridge. Approximately 1 mile west of Philmont Scout Ranch headquarters.

RANGE CONDITION GUIDE

#79

Range Site Name Gravelly Upland (CP-1, HP-1)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|-------------------------|---------------------------------------|-----------|------------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 3 | Little bluestem | Blue grama | 30 | Sleepy grass |
| 3 | Sideoats grama | Oak | 10 | Ring muhly |
| 4 | Big bluestem | Skunkbush sumac | 5 | Broom snakeweed |
| 5 | New Mexico feathergrass | Fringed sage | 5 | Herbacious sages |
| 5 | Needle and thread | Three-awns | T | Gumweed |
| 5 | Spike muhly | Silver bluestem | 5 | Annual weeds |
| | | Wolf tail | 5 | |

Maximum total percent 50

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 30 | 20 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | ? | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--High Plains (HP-2)
Central Plains and Valleys (CP-2, CP-3)

TG Section II-E

RANGE SITE - No. 80

1. RANGE SITE NAME: Gravelly Upland (HP-2, CP-2, CP-3)

2. CLIMATE:

- a. Annual average precipitation for this area averages from approximately 14 to 17 inches. About three-fourths of this amount falls during the period April to October inclusive, with July and August usually recording the highest monthly averages. Spring and summer rainfall is characterized by torrential thundershowers of high intensity and short duration that produce high runoff from unprotected soils. There are extreme fluctuations in the amount of rainfall from year to year and frequent droughts may last from 3 to 4 years. Annual rainfall in the area has ranged from a high of 40 inches to as low as 6.15 inches. Winter moisture may occur as either rain or snow and usually averages less than 1/2 inch per month.
- b. Wind velocities in this area are high and average about 5.3 miles per hour on an annual basis. The spring months are characterized by frequent windstorms with velocities in excess of 45 miles per hour which cause excessive erosion on soils not protected by a good cover of vegetation. Humidity is low and evaporation is high, usually averaging 75 inches during the period April to October inclusive.
- c. The principal growing season of native vegetation occurs during the period May through September inclusive. The frost free season averages 188 days April 17 to October 22. Summers are hot with maximum temperatures frequently reaching 100°F or more from late May to early September. Winters are characterized by warm sunny days and cold nights, with occasional "northers" that may keep temperatures below freezing for several days. Temperatures of 0°F or lower have occurred in about half of the years of record with -18°F the lowest temperature of record in the area. The percentage of sunshine is high averaging 80 percent or more of the possible amount in most years.

3. TOPOGRAPHY AND ELEVATIONS:

This site consists of low ridges with undulating surface topography, and occurs at elevations ranging from approximately 4,000 feet to 5,000 feet.

RANGE SITE - No. 80

4. SOILS:

- a. The principal soils of this site are weakly developed, consisting of recent outwash material of variable depth deposited over red bed formations. They are gravelly on the surface and throughout, containing water worked gravels ranging in size up to 4 inches in diameter with occasional boulders. The soil matrix is calcareous throughout with an accumulation of caliche at 14 to 16 inches. Water intake is rapid but water-holding capacity is limited.
- b. Significant soils series are:
- | | |
|---------------------------------|----------------------------|
| Ojito stoney sandy loam | Enciero channery loam |
| Scholle gravelly loam | Eastview gravelly loam |
| Bartelo gravelly loam | Fuera gravelly loam |
| Bassel gravelly fine sandy loam | Keck gravelly loam |
| Chilton gravelly loam | Lohman gravelly sandy loam |
| Negra gravelly sandy loam | |
- c. Detailed description of this soil can be found in the descriptive legend for Standard Soil Surveys in Harding and Torrance Counties.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|--------------------|--------------------|-----------------|
| Blue grama | Tobosa | Mesquite |
| Black grama | Galleta | Buffalo grass |
| Arizona cotton top | Hairy tridens | Three-awns |
| Little bluestem | Rough tridens | Ring grass |
| | One-seeded juniper | Snake weed |
| | Yucca | |

- b. The vegetation of this site is composed of more xeric species than are found on the adjacent sites.
- c. Yields - data lacking.
- d. Plant cover approximately 30 percent.

6. SPECIFIC TYPE LOCATION:

Approximately 4 miles west of Ute Creek along Atarque Road, T 14N,
R 31-32E M.P.M.

RANGE CONDITION GUIDE

#80

Range Site Name Gravelly Upland (HP-2, CP-2, CP-3)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|------------------------------------|-----------|---------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Black grama | Tobosa) | 20 | Mesquite |
| 1 | Blue grama | Galleta) | | Three-awns |
| 2 | Sideoats grama | Rough tridens | 10 | Buffalo grass |
| 5 | Arizona cottontop | Hairy tridens | 5 | Ring grass |
| 5 | Little bluestem | One-seed juniper | T | Snake weed |
| 5 | Wolf tail | Small soapweed | 5 | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 30 | 20 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | ? | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Northern Desert Valleys and Mesas (ND)

TG Section II E

RANGE SITE - No. 81

1. RANGE SITE NAME: Gravelly Upland (ND)

2. CLIMATE:

- a. The average annual rainfall in the Northern Desert will average 10 inches, but portions record as low as 6.76 inches on the San Juan Valley. Torrential summer shower type rains are common in July, August, and September. Summer averages are 3 to 4 inches.
- b. The driest period of the year is ordinarily late spring with strong winds common.
- c. The principal growing season on this site is during the summer months when precipitation amounts and temperatures are optimum for grama. At the elevations above 6,500 feet, cool season growers make a considerable production during March and April and, after a dormant summer season, will make some growth in fall (Oct.-Nov.). Frost-free periods range from about 140 days in the higher portion of the district to 163 days in the lower portion. These periods extend from May 8 and May 22 to October 9 October 18.

3. TOPOGRAPHY AND ELEVATION:

- a. This site occurs in the Northern Desert Land Resource Area on open flat to steep sloping areas. Predominant slope for the site is moderately steep and may be broken by deep stream beds.
- b. Elevations vary from 5,000 to 7,000 feet. The site is a complex site with various exposures and slopes, but is mapped as one unit. The site may be choppy with steep banks along water courses.

4. SOILS:

- a. Soils included in this site vary in texture, but are usually medium-textured with gravel material throughout the profile. The soils are shallow to deep with matrix of various sized gravel and rocks. The surface is partially protected from wind erosion by gravel. With reduced vegetative cover, the slopes will gully. Moisture storage capacity of the soil is moderate to low. The site responds to showers and produces early forage when spring showers occur.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES AND PHASES

Gravel Hills land type

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Blue grama
Galleta
Sand dropseed
Indian ricegrass
Common winterfat
Bluestem (western) wheat-
grass

Increasers

Poverty threeawn
Fluffgrass
Ring muhly
Big sagebrush
Sand sagebrush
Rubber rabbitbrush
Cactus sp.
Small soapweed
Juniper

Invaders

Pingue
Loco
Whorled milkweed

- b. The decreaseers make up 75 percent of the vegetation and the remainder is increasers. There may be 10 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 20 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#81

Range Site Name Gravelly Upland (ND)

| Rating | Decreasers (Count all %) | Increasers (Count no more than % shown) | Max. % By Wt. | Invaders (Count none) |
|--------|-----------------------------|-----------------------------------------------|------------------------|--------------------------|
| 1 | Blue grama | Poverty threeawn | 10 | Pingue |
| 2 | Galleta | Fluffgrass | T | Loco |
| 4 | Sand dropseed | Ring muhly | 5 | Whorled |
| 4 | Indian ricegrass | Big sagebrush | 5 | milkweed |
| 1 | Bluestem (western) | Sand sagebrush | T | |
| | wheatgrass | Rubber rabbitbrush | 5 | |
| 5 | Common winterfat | Cactus sp. | T | |
| | | Small soapweed | T | |
| | | Juniper | 10 | |

Maximum total percent 25

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 20 | 15 | 10 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-1)
Western Plateaus and Mesas (WP-1, WP-2)

TG Section II E

RANGE SITE - No. 82

1. RANGE SITE NAME: Gravelly Upland (SD-1, WP-1, WP-2)

2. CLIMATE:

- a. Precipitation annually averages from 8 to 14 inches, most of which occurs in summer rains through the months of July, August, and early September.
- b. March through June is generally dry and often windy, causing erosion and evaporation of moisture on unprotected areas.
- c. Winter snow and some rain occur through the winter months, but contribute little to vegetative production. Yearly precipitation varies with 64 percent of the years below the average and prolonged drought periods which affect the forage production. Brief spring moisture not common to the site will produce cool season grasses and annuals. Light showers are particularly effective on the site.

3. TOPOGRAPHY AND ELEVATION:

- a. Topography ranges from gently rolling to steep hills. The hills are moderately steep, averaging 40 percent in slope. The site has numerous water courses in a network throughout the hills. The gravel deposits may be deep or be a cap cover over the gentle sloping hills.
- b. Elevation of this site occurs at 5,500 to 7,000 feet.

4. SOILS:

- a. Gravelly medium-textured surface soils and subsoils are characteristic of this site. The site may have small stones in the profile matrix. Moisture intake is rapid. Moisture holding capacity is low making frequent light showers most effective for forage production. The site is not highly erodible under normal rainfall conditions.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Unnamed soils

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|--------------------------------|--------------------|------------------|
| Sideoats grama | Poverty threeawn | Loco |
| Blue grama | Sand dropseed | Pingue |
| Black grama | Spike dropseed | Whorled milkweed |
| Hairy grama | Ring muhly | Fiddleneck |
| Indian ricegrass | Tobosa | |
| Bluestem (western) wheat-grass | Broom snakeweed | |
| Chamiza | Rubber rabbitbrush | |
| Common winterfat | Sand sagebrush | |
| Apacheplume | Small soapweed | |
| Alkali sacaton | Cactus sp. | |
| | Pinon | |
| | Juniper | |

- b. The decreaseers make up 50 percent of the vegetation and the remainder is increasers. There may be a trace of woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers from 20 to 30 percent of the ground.

6. SPECIFIC TYPE LOCATION:

Range Site Name Gravelly Upland (SD-1) (WP-1) (WP-2)

| Rating | Decreasers (Count all %) | Increasers (Count no more than % shown) | Max. | Invaders (Count none) |
|--------|-----------------------------|-----------------------------------------------|----------------|--------------------------|
| | | | % By Wt. | |
| 2 | Sideoats grama | Poverty threeawn | 5 | Loco |
| 1 | Blue grama | Sand dropseed | 10 | Pingue |
| 1 | Black grama | Spike dropseed | 10 | Whorled milk- |
| 3 | Hairy grama | Ring muhly | T | weed |
| 3 | Indian ricegrass | Tobosa | 20 | Fiddleneck |
| 3 | Bluestem (western) | Broom snakeweed | T | |
| | wheatgrass | Rubber rabbitbrush | T | |
| 4 | Chamiza | Sand sagebrush | T | |
| 4 | Apacheplume | Small soapweed | T | |
| 4 | Galleta | Cactus sp. | 5 | |
| 4 | Common winterfat | Pinon | T | |
| 5 | Alkali sacaton | Juniper | T | |

Maximum total percent 50

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 25 | 20 | 10 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Western Plateaus and Mesas (WP-3)

TG Section II-E

RANGE SITE - No. 83

1. RANGE SITE NAME: Gravelly Upland (WP-3)

2. CLIMATE:

- a. Precipitation averages from 13 to 16 inches and ranges from an all time low of 5.8 inches to a record high of 31.17 inches. Approximately one-half of the precipitation occurs during the months of July, August, and September. There are extreme fluctuations from year to year with periodic droughts. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages 1 inch per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. High temperatures, fairly constant winds, and low humidity cause the average annual evaporation to range up to 93 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during June, July, and August. The growing season of the native warm season plants begins after the last frost, April 15 to April 28, and continues as moisture is available until October 16 to November 2, which are the average dates ending the frost free period. Winters are generally mild. Average annual temperatures range from 55°F to 60°F.

3. TOPOGRAPHY AND ELEVATIONS:

The topography is gently sloping to strongly sloping with an average slope of 5 percent. The site usually occurs as the outwash fan of Stony Hills site. The site is frequently dissected by dry washes. Elevations vary from 4,500 to 6,000 feet elevation above sea level.

4. SOILS:

- a. The significant soils which characterize this site are gravelly clay loams and gravelly loams. Soil depth varies from moderately deep to shallow. Water intake rates are good if the vegetative cover is adequate. Moisture holding capacity is medium. These soils are non-calcareous at the surface and are generally leached into or through the subsoils. If unprotected by plant cover the soils are highly susceptible to water erosion from intense storms.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

(TG Section II-E
(Range Site No. 83

Unnamed soils

- c. When standard soil surveys are initiated complete soil series descriptions will be available in the Soil Survey Descriptive Legend or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|---------------------|-----------------------|------------------|
| Sideoats grama | Tobosa | Mesquite |
| Blue grama | Threeawn | American tarbush |
| Hairy grama | Fluffgrass | |
| Plains lovegrass | Curly mesquite | |
| Cane bluestem | Creeping muhly | |
| Black grama | Ring muhly | |
| Bush muhly | Sand dropseed | |
| Green sprangletop | Wavyleaf thistle | |
| Wolftail | Threadleaf groundsel | |
| Vine mesquite | Rocky Mountain zinnia | |
| Plains bristlegress | Broom snakeweed | |
| Arizona cottontop | Loco | |
| Chamiza | Globemallow | |
| | Senna | |
| | Soaptree yucca | |
| | Sacahuista | |
| | Apache plume | |
| | Cactus | |
| | Shoatbush | |
| | Ondalia | |
| | Wolfberry | |

- b. The decreaseers make up 70 percent of the vegetation and the remainder may be increasers. Woody vegetation may make up 10 percent of the vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is 1,000 to 1,250 pounds per acre. *
- d. Herbage covers from 20 to 25 percent of the ground.

6. SPECIFIC TYPE LOCATION:

* Based on estimates only.

RANGE CONDITION GUIDE

#83

Range Site Name Gravelly Upland (WP-3)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|------------------------------------|-----------|--------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Black grama | Wright Eriogonum | 5 | Mesquite |
| 2 | Sideoats grama | Apache plume | 5 | Tarbush |
| 2 | Blue grama | Curly mesquite | 5 | |
| 4 | Hairy grama | Sacahuista | 5 | |
| 4 | Cane bluestem | Tobosa | 10 | |
| 4 | Bush muhly | Threeawns | 15 | |
| 5 | Plains lovegrass | Fluffgrass | T | |
| 5 | Green sprangletop | Ring muhly | T | |
| 5 | Wolftail | Sand dropseed | T | |
| 5 | Vine-mesquite | Wavyleaf thistle | T | |
| 5 | Plains bristlegrass | Threadleaf groundsel | T | |
| 5 | Arizona cottontop | Rocky Mountain zinnia | T | |
| 5 | Chamiza | Broom snakeweed | T | |
| | | Loco | T | |
| | | Senna | T | |
| | | Soaptree yucca | T | |
| | | Cactus | T | |
| | | Rabbitbush | T | |
| | | Condalia | T | |
| | | Wolfberry | T | |

Maximum total percent 30

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 20 | 15 | 10 | Any |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 1,000 | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-2)

TG Section II-E

RANGE SITE - No. 84

1. RANGE SITE NAME: Gravelly Upland (SD-2)

2. CLIMATE:

- a. Precipitation averages from 8 to 12 inches and ranges from an all time low of 2.9 inches to a record high of 25.7 inches. The greater part occurs during the months of July, August, and September. There are extreme fluctuations from year to year, with periodic droughts. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages less than half an inch per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. These high winds in March, April, and May cause extensive erosion on unprotected soils. High temperatures, fairly constant winds, and low humidity cause the average annual evaporation to range up to 107 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during July, August, and September. The growing season of the native warm season plants begins after the last frost, March 29 to April 23, and continues as moisture is available until October 15 to November 12, which are the average dates ending the frost free period. Winters are generally mild; however, there is a recorded low of -10°F . The maximum summer temperature on record is 110°F . Average annual temperatures range from 58°F to 60°F .

3. TOPOGRAPHY AND ELEVATIONS:

Slopes on this site vary from 1 to 9 percent with small areas up to 15 percent. The site occurs on the outwash fans from Stony Hills and Stony Mountains sites. The general aspect is gently to moderately sloping, usually dissected by numerous washes. Elevations range from 3,800 to 5,000 feet above sea level. This site occupies areas typical of the Limey Slopes site.

4. SOILS:

- a. The significant soils which characterize this site are gravelly clay loams and gravelly loams. They are usually shallow to moderately deep. Water intake rates are fair and moisture holding capacity is low to medium. These soils are non-calcareous at the surface and are generally leached into or through the subsoil. If unprotected by plant cover, the soils are highly susceptible to water erosion from intense storms.
- b. The significant soils in this site may include one or more of the following soils:

SERIES, TYPES, AND PHASES

Corduroy gravelly clay loam
Unnamed gravelly soils

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legend or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Black grama
Sideoats grama
Bush muhly
Blue grama
Arizona cottontop
Cane bluestem
Plains bristlegrass
Vine-mesquite
Green needlegrass
New Mexico feathergrass

Increasers

Tobosa
Threeawns
Fluffgrass
Sand dropseed
Whiplash pappusgrass
Common winterfat
Chamiza
Apache plume
Wright Eriogonum
Littleleaf sumac
Sacahuista
Wolfberry
Longleaf Ephedra
Cactus
Catclaw
Sotol
Soaptree yucca
Threadleaf groundsel

Invaders

Mesquite
Creosotebush
American tarbush

RANGE SITE - No. 84

5. POTENTIAL VEGETATION: (continued)

- b. The decreasers make up 50 percent of the vegetation and the remainder may be increasers. There may be 15 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is 650 to 950 pounds per acre. *
- d. Herbage covers from 15 to 20 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

The slopes at the base of the Burro Mountains on the Bilbo and Johnson 96 Ranch, Hidalgo County.

* Based on limited plot clippings and estimates.

RANGE CONDITION GUIDE

#84

Range Site Name Gravelly Upland (SD-2)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|-------------------------|------------------------------------|-----------|------------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Black grama | Fluffgrass | 5 | Mesquite |
| 1 | Sideoats grama | Sand dropseed | 5 | Creosotebush |
| 1 | Bush muhly | Apache plume | 5 | American tarbush |
| 3 | Blue grama | Wright Eriogonum | 5 | |
| 3 | Arizona cottontop | Threeawns | 10 | |
| 3 | Cane bluestem | Tobosa | 15 | |
| 4 | Plains bristlegrass | Common winterfat | 15 | |
| 5 | Vine-mesquite | Chamiza | 15 | |
| 5 | Green needlegrass | Whiplash pappusgrass | T | |
| 5 | New Mexico feathergrass | Littleleaf skunkbush | T | |
| | | Sacahuista | T | |
| | | Wolfberry | T | |
| | | Longleaf Ephedra | T | |
| | | Cactus | T | |
| | | Catclaw | T | |
| | | Sotol | T | |
| | | Soaptree yucca | T | |
| | | Threadleaf groundsel | T | |

Maximum total percent 50

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 15 | 10 | 5 | Any |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 650 | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-4)

TG Section II-E

RANGE SITE - No. 84a

1. RANGE SITE NAME: Gravelly Upland (SD-4)

2. CLIMATE:

- a. Precipitation averages from 13 to 21 inches and ranges from an all time low of 9.8 inches to a record high of 29 inches. Approximately one-half of the precipitation occurs during the months of July, August, and September. There are extreme fluctuations from year to year, with periodic droughts. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages 1.5 inches per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. High temperatures, fairly constant winds, and low humidity causes the average annual evaporation to range up to 90 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during July, August, and September. The growing season of the native warm season plants begins after the last frost, April 29 and continues as sufficient moisture is available until October 27 which is the average date ending the frost free period. Winters are generally mild. Average annual temperature is 57°F.

3. TOPOGRAPHY AND ELEVATIONS:

This site occurs at the base of the Animas and Peloncillo Mountains. The topography is moderately sloping to steep with an average gradient of 5 percent. It is generally dissected by deep dry washes. Elevations range from 5,000 to 6,000 feet above sea level.

4. SOILS:

- a. The significant soils that characterize this site are gravelly clay loams. They are usually leached and are underlain by gravel and/or stone in a matrix of fine textured soil. If unprotected by vegetation the soil is highly susceptible to water erosion. Water intake rates are medium if vegetative cover is adequate. Moisture holding capacity is high.

- b. The significant soil in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

(TG Section II-E
(Range Site No. 84a

Unnamed soils

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legend or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Little bluestem
Texas bluestem
Sideoats grama
Black grama
Blue grama
Hairy grama
Bush muhly
Plains lovegrass
Cane beardgrass
Bullgrass
Wolftail
Woolspike Balsamscale
Arizona cottontop
Slender grama
Muhlenbergia mundula
Deergrass
Vine-mesquite

Increasers

Tobosa
Threeawns
Tanglehead
Curly mesquite
Buffalograss
Creeping muhly
Fluffgrass
Shrub liveoak
Sacahuista
Cactus
Threadleaf groundsel
Loco
Juniper

Invaders

Mesquite
Burroweed

- b. The decreaseers make up 70 percent of the vegetation and the remainder may be increasers. There may be 10 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is 1,100 to 1,350 pounds per acre. *
- d. Herbage covers from 20 to 25 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

About 26 miles south of Animas in Sec. 31, T 31S, R 19W.

* Based on limited plot clippings and estimates.

RANGE CONDITION GUIDE

#84a

Range Site Name Gravelly Upland (SD-4)

| Rating | Decreasers | Increasers | Max. % By Wt. | Invaders |
|--------|------------------------|---------------------------------------|------------------------|--------------|
| | (Count all percent) | (Count no more than percent shown) | | (Count None) |
| 1 | Little bluestem | Threeawns | 5 | Mesquite |
| 1 | Texas bluestem | Tanglehead | 5 | Burroweed |
| 1 | Sideoats grama | Curly mesquite | 5 | |
| 1 | Black grama | Buffalograss | 5 | |
| 1 | Blue grama | Shrub live oak | 5 | |
| 1 | Hairy grama | Sacahuista | 5 | |
| 3 | Bush muhly | Tobosa | 15 | |
| 3 | Plains lovegrass | Creeping muhly | T | |
| 4 | Cane bluestem | Fluffgrass | T | |
| 4 | Bullgrass | Cactus | T | |
| 4 | Wolftail | Threadleaf groundsel | T | |
| 5 | Woolspike Balsamscale | Loco | T | |
| 5 | Arizona cottontop | Juniper | T | |
| 5 | Slender grama | | | |
| 5 | Muhlenbergia mundula | | | |
| 5 | Deergrass | | | |
| 5 | Vine-mesquite | | | |

Maximum total percent 30

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 20 | 15 | 10 | Any |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 1,100 | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--High Plains (HP-1)
Central Plains and Valleys (CP-1)

TG Section II-E

RANGE SITE - No. 85

1. RANGE SITE NAME: Malpais Upland (HP-1, CP-1)

2. CLIMATE:

- a. Annual precipitation averages from 15 to 18 inches. Approximately three-fourths of the annual average occurs during the period April to October inclusive. July and August most commonly receive the highest monthly totals. There are extreme fluctuations from year to year with recurrent droughts that have lasted as long as 4 years. Annual rainfall in the area has fluctuated from a high of 37.65 inches to a low of 5.54 inches in a 10-year period. Summer rainfall is characterized by torrential thundershowers producing high runoff from unprotected soils. Winter precipitation, which averages about 1/2 inch per month, usually occurs in the form of snow.
- b. Wind velocities for the area are high, averaging about 4.5 miles per hour on an annual basis. Spring windstorms occur frequently with velocities in excess of 45 miles per hour, causing severe wind erosion on soils inadequately protected by vegetation. Humidity is low and evaporation high, averaging 60 inches or more during the period April through October.
- c. The frost free season ranges from about 135 days at the higher elevations to about 165 days at lower elevations. The principal growing season for native plants occurs from May 15 to September 15 if sufficient moisture is available. Sub zero temperatures will usually occur every year with minimums of -20°F not uncommon. Summers are characterized by warm days and cool nights, with maximum temperatures seldom reaching 100°F. The percentage of sunshine is high, averaging about 80 percent of the possible amount.

3. TOPOGRAPHY AND ELEVATIONS:

This site has nearly level to undulating or sloping surface topography and is underlain by lava which is frequently exposed and may protrude above the surface forming knolls of more or less bare rock. Elevations range from approximately 5,500 feet to 7,000 feet.

4. SOILS:

a. Soils of this site are developing from or over basalt. They are medium to moderately heavy textured and shallow with some pockets of deeper soil included. They usually have some boulders on the surface. The underlying basalt is often fractured which tends to concentrate moisture in the fissures and allows deep root penetration.

b. Significant soil series of this site are:

Apache loam
Apache stony loam

c. Detailed descriptions of these soils may be found in the legend for Standard Soil Surveys in Colfax, Harding, and Union Counties.

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Little bluestem
Western wheatgrass
Big bluestem
Sideoats grama
Indian grass
Switch grass
New Mexico feathergrass
Needle and thread
Prairie clover
Lead plant

Increasers

Blue grama
Hairy grama
Silver bluestem
Three-awns
Fringed sagebrush
Herbaceous sages
Skunkbush sumac
Currant
Thimble berry
Small soapweed
Sacahuista

Invaders

Annuals
Sleepy grass
Galleta grass
Buffalo grass
Broom snake weed
Prickly pear

b. Two-thirds of the vegetation is made up of decreasing species. Some woody vegetation is part of the climax for this site. 10 percent woody species may be present in excellent range condition.

c. Yields: Total herbage yields 2,000 to 2,500 pounds air dry per acre.

d. Ground cover approximately 35 percent.

6. SPECIFIC TYPE LOCATION:

Sec. 6, T 26N, R 33N, NMPM.

RANGE CONDITION GUIDE

#85

Range Site Name Malpais Upland (HP-1, CP-1)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|-------------------------|------------------------------------|----------------|-----------------|
| | (Count all percent) | (Count no more than percent shown) | % By Wt. | (Count None) |
| 2 | Little bluestem | Blue grama | 25 | Sleepy grass |
| 3 | Western wheatgrass | Hairy grama | 5 | Galleta grass |
| 4 | Big bluestem | Silver bluestem | T | Buffalo grass |
| 4 | Sideoats grama | Three-awns | 5 | Broom snakeweed |
| 5 | Indian grass | Fringed sagebrush | T | Prickly pear |
| 5 | Switch grass | Herbacious sages | T | Senecio |
| 5 | New Mexico feathergrass | Skunkbush sumac | T | |
| 5 | Needle & thread | Currant | T | |
| 5 | Prairie clover | Thimbleberry | T | |
| 5 | Lead plant | Small soapweed | T | |
| | | Sacahuista | 5 | |
| | | Mountain mahogany | 5 | |

Maximum total percent 35

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 35 | 35 | 20 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 2,500 | | | |
| Unfavorable Years | 1,500 | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Western Plateaus and Mesas (WP-1, WP-2)

TG Section II E

RANGE SITE - No. 86

1. RANGE SITE NAME: Malpais Upland (WP-1, WP-2)

2. CLIMATE:

- a. Precipitation varies from 10 to 15 inches per year. The major portion falls as rain in the months of July, August, and September. Rainfall comes generally as high intensity thunderstorms and runoff is not high when vegetative cover is poor. Some spring moisture is received, but amounts of winter moisture are quite light. June is ordinarily the driest month for the growing season.
- b. Windy spring weather is experienced from February to June.
- c. The growing season averages about 130 days. Little forage growth is expected until July when the summer rains usually start. Snowfall may be moderately heavy some years in the upper elevations of the site. Early or late winter moisture in the form of light rain accounts for a very minor part of the moisture and temperatures are too cold for any appreciable amount of vegetative growth.

3. TOPOGRAPHY AND ELEVATION:

- a. This site occurs throughout the resource area on open, flat to moderately sloping areas. Maximum slope for this site is 5 percent. A series of natural lakes may occur intermittently throughout the site. The site includes all exposures, usually a uniform slope extends throughout the site and may be broken by intermitting arroyos. Occasionally low hills or knobs may break the flat to moderate slopes characteristic to the site.
- b. Elevation ranges from 5,000 to 7,000 feet.

4. SOILS:

- a. Soils of the Malpais Site are generally shallow with pockets of deep soil. The surface texture may be medium to heavy. Water intake rates are moderate to rapid. Soils have a medium water storage potential depending on the depth. Erosion is very minor with little to no runoff even in high intensity rainfall over a short period of time. Cracks, Crevices, and fissures may be interspersed throughout the site.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Prieta stony loam
Apache stony loam

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Blue grama
Galleta
Chamiza
Bluestem (western) wheat-
grass
Alkali sacaton
Common winterfat
Needleandthread grass
Sideoats grama
Pine dropseed
Little bluestem

Increasers

Sand dropseed
Poverty threeawn
Broom snakeweed
Apacheplume
Gambel oak
Mat muhly
Squirreltail
Rubber rabbitbrush
Longleaf Ephedra

Invaders

Pinon
Juniper
Pingue

- b. The decreaseers make up 65 percent of the vegetation and the remainder is increasers.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 30 percent of the ground.

6. SPECIFIC TYPE LOCATION:

Range Site Name Malpais Upland (WP-1, WP-2)

| Rating | Decreasers (Count all %) | Increasers (Count no more than % shown) | Max. % By Wt. | Invaders (Count none) |
|--------|-----------------------------|-----------------------------------------------|------------------------|--------------------------|
| 1 | Blue grama | Sand dropseed | 10 | Pinon |
| 2 | Galleta | Poverty threeawn | 5 | Juniper |
| 3 | Chamiza | Broom snakeweed | 5 | Pingue |
| 3 | Bluestem (western) | Apacheplume | T | |
| | wheatgrass | Mat muhly | 5 | |
| 4 | Alkali sacaton | Squirreltail | 5 | |
| 4 | Needleandthreadgrass | Rubber rabbitbrush | | |
| 4 | Sideoats grama | Longleaf Ephedra | T | |
| 5 | Pine dropseed | Gambel oak | T | |
| 5 | Little bluestem | | | |
| 4 | Common winterfat | | | |

Maximum total percent 35

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 20 | 10 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Western Plateaus and Mesas (WP-3)

TG Section II-E

RANGE SITE - No. 87

1. RANGE SITE NAME: Malpais Upland (WP-3)

2. CLIMATE:

- a. Precipitation averages from 13 to 16 inches and ranges from an all time low of 5.8 inches to a record high of 31.17 inches. Approximately one-half of the precipitation occurs during the months of July, August, and September. There are extreme fluctuations from year to year with periodic droughts. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages one inch per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. High temperatures, fairly constant winds, and low humidity cause the average annual evaporation to range up to 93 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during June, July, and August. The growing season of the native warm season plants begins after the last frost, April 15 to April 28, and continues as moisture is available until October 16 to November 2, which are the average dates ending the frost free period. Winters are generally mild. Average annual temperatures range from 55°F to 60°F.

3. TOPOGRAPHY AND ELEVATIONS:

Topography on this site is gently sloping to steep, with slopes from 2 to 15 percent. The average slope is 5 percent. There generally is a large amount of basaltic boulders present on the surface. Water and accessibility to livestock may limit use. Elevations vary from 4,150 to 6,500 feet elevation above sea level.

4. SOILS:

- a. The significant soils that characterize this site are stony clay loams that are very shallow to moderately deep over basalt. Soil, plant, and moisture relationships are good. Wind and water erosion are usually not a problem on this site due to the mantle of stones and the broken material which precludes runoff.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

(TG Section II-E
(Range Site No. 87

Apache like stony soils
Prieta like stony soils

- c. When the standard soil survey is initiated complete soil series descriptions will be available in the Soil Survey Descriptive Legend, or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Sideoats grama
Blue grama
Hairy grama
Vine-mesquite
Plains lovegrass
Cane bluestem
Black grama
Green sprangletop
Arizona cottontop
Common winterfat
Chamiza

Increasers

Tobosa
Threeawns
Curly mesquite
Hall panicum
Fluffgrass
Creeping muhly
Wright Eriogonum
Littleleaf sumac
Wright lippia
Mormon tea
Broom snakeweed
Soaptree yucca
Cactus
Catclaw
Mescal acacia
Shrub liveoak
Loco

Invaders

Mesquite
Annuals

- b. The decreaseers make up 70 percent of the vegetation and the remainder may be increasers. There may be 10 percent woody vegetation in excellent condition.
- c. Annual herbage yields of this site based on plot clippings is _____ to _____ pounds per acre.
- d. Herbage covers from 20 to 25 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#87

Range Site Name Malpais Upland (WP-3)

| Rating | Decreasers | Increasers | Max. % By Wt. | Invaders |
|--------|---------------------|------------------------------------|------------------------|--------------|
| | (Count all percent) | (Count no more than percent shown) | | (Count None) |
| 1 | Sideoats grama | Creeping muhly | 5 | Mesquite |
| 1 | Blue grama | Wright Eriogonum | 5 | Burrograss |
| 2 | Black grama | Wright lippia | 5 | |
| 3 | Vine-mesquite | Shrub live oak | 5 | |
| 4 | Hairy grama | Threeawns | 10 | |
| 4 | Plains lovegrass | Tobosa | 20 | |
| 4 | Cane bluestem | Curly mesquite | 20 | |
| 4 | Green sprangletop | Hall Panicum | T | |
| 4 | Arizona cottontop | Fluffgrass | T | |
| 4 | Common winterfat | Littleleaf skunkbush | T | |
| 4 | Chamiza | Longleaf Ephedra | T | |
| | | Broom snakeweed | T | |
| | | Soaptree yucca | T | |
| | | Cactus | T | |
| | | Catclaw | T | |
| | | Mescal acacia | T | |
| | | Loco | T | |

Maximum total percent 30

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 20 | 15 | 10 | Any |

Approximate Air-Dry Forage Yields per Acre By:

Range Condition Classification
Excellent Good Fair Poor

Favorable Years

Unfavorable Years

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-1)

TG Section II-E

RANGE SITE - No. 88

1. RANGE SITE NAME: Malpais Upland (SD-1)

2. CLIMATE:

- a. Average annual precipitation is approximately 10 inches for this range site. Summer thunderstorm activity accounts for about 50 percent of this amount while the remainder is received as general rains and winter snowfall. The bulk of the range forage is produced during July, August, and September, the principal growing season for blue grama. Some cool season growers may be in production as early as April, and blue grama may even "green up" sometime during the spring. Winters are generally not severe although temperatures may drop below zero and several inches of snow may cover the ground for rather brief periods. Precipitation amounts are extremely variable as evidenced by the fact that one recording station received only .08 for one 6-month period but during July 2.08 inches were received during a 3-day period.
- b. Spring winds, common to this area, are less damaging to this site than to other contiguous sites because of a partial rock mantle. Daily temperature range is great with a 50°F range not being unusual.
- c. Summer temperatures during the daytime may exceed 100°F at times and continuous runs of temperatures in the high 90's are common. These temperatures occur during the season of greatest thunderstorm activity when brief intense downpours are received. Evaporation rates are high during the principal growing season. Corrected mean daily water loss averaged 56.6 m l per atmometer during July and 49.6 during August for locations near this site.

3. TOPOGRAPHY AND ELEVATIONS:

Topography of the site varies from flat to undulating slopes, usually not exceeding 15 percent in general, with the terrain being interrupted by outcrop extrusions of basalt in various stages of decomposition. A portion of the site may be broken by larger areas of bare rock mapped out as waste. The site may occur as nearly level appearing mesa tops, as valley lava flows, or as intermediate foot slopes to old volcanic cones. Elevation range is from 5,500 to 6,500 feet.

RANGE SITE - No. 88

4. SOILS:

a. Soil textures vary from stony loam to stony clay loam. Basalt outcrops are common and the frequency of these naturally lessens the grazing potential of the site. The basalt cobble and stones on the surface reduce evaporation, tends to produce higher infiltration rates, and provides surface protection against the forces of erosion. Depth of soil is variable but dominantly shallow. Storage capacity for soil moisture is moderate to low.

b. Soil series included are:

Prieta stony loam
Apache (like) stony loam

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Sideoats grama
Black grama
Bush muhly
Green sprangletop
Blue grama
Hairy grama
Texas timothy
Silver beardgrass
Vine mesquite
Squirreltail
Alkali sacaton
Apache plume
Little bluestem
Needle & threadgrass
Indian ricegrass
Plains bristlegrass
Chamise
Winterfat
Western wheatgrass
Squawbush

Increasers

Tobosa
Galleta
Sand dropseed
Mesa dropseed
Spike dropseed
Three-awn
Ring muhly
Fluffgrass
Wolfberry
Cholla
Prickly pear
Hairy tridens
Yucca
Horsebrush
Smokebush
Sand sage

Invaders

Snakeweed
Rabbitbrush
Mormon tea
Mesquite

5. POTENTIAL VEGETATION: (continued)

- b. Potential vegetation making up about 60 percent of the total plant composition includes the following species as dominants: Blue grama, black grama, sideoats grama, bush muhly, alkali sacaton, and Indian ricegrass. Small percentages of squirreltail, little bluestem, hairy grama, Texas timothy, western wheatgrass, vine mesquite, chamise, and winterfat are present. Dropseed, occurring as increasers up to 15 percent of the composition may be present. Scattered few individuals, including yucca, horsebrush, fluffgrass, three-awn, and ring grass occur. Galleta or tobosa in amounts up to 10 percent is usually present.
- c. Forage yields vary from _____ pounds per acre to _____ pounds per acre.
- d. Ground cover is approximately 20 percent. Pockets of soil have a fairly uniform grass cover amounting to about one-fifth total density.

6. SPECIFIC TYPE LOCATION:

Mesa top, west of Los Lunas, along Highway 6.

RANGE CONDITION GUIDE

#88

Range Site Name

Malpais (SD-1)
~~Deep Sand (CP-3)~~

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|--------------------------|---------------------------------------|-----------|--------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 3 | Sideoats grama | Tobosa) | 10 | Snakeweed |
| 1 | Black grama | Galleta) | | Rabbitbrush |
| 2 | Bush muhly | Sand dropseed) | 15 | Mormon tea |
| 4 | Green sprangletop | Mesa dropseed) | | Mesquite |
| 1 | Blue grama | Spike cropseed) | 5 | |
| 4 | Hairy grama | Three-awn | | |
| 4 | Texas timothy | Ring muhly | 5 | |
| 4 | Silver beardgrass | Fluffgrass | T | |
| 4 | Vine-mesquite | Wolfberry | T | |
| 5 | Bottlebrush squirreltail | Smokebush | T | |
| 3 | Alkali sacaton | Sand sagebrush | T | |
| 5 | Apache plume | Cholla | T | |
| 4 | Little bluestem | Prickly pear | T | |
| 4 | Needle and thread | Hairy tridens | 5 | |
| 3 | Indian ricegrass | Yucca | 5 | |
| 4 | Plain bristlegrass | Horsebrush | 5 | |
| 4 | Chamiza | | | |
| 4 | Winterfat | | | |
| 3 | Western wheatgrass | | | |
| 5 | Skunkbush sumac | | | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 20 | 15 | 15 | XX |

Approximate Air-Dry Forage Yields per Acre By:

Range Condition Classification
Excellent Good Fair Poor

Favorable Years

Unfavorable Years

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-2)

TG Section II-E

RANGE SITE - No. 89

1. RANGE SITE NAME: Malpais Upland (SD-2)

2. CLIMATE:

- a. Average annual precipitation for the site is approximately 9 inches about 52 percent of which falls during the principal growing season of July, August, and September. Winter precipitation in the form of rain and snow is quite sporadic. In years of abnormally high winter moisture production of annual forbs and grasses is relatively high but ensuing dry spring weather may completely desiccate soil moisture. Typical of southwestern conditions, summer rainfall is also extremely variable, resulting in wide fluctuations in range forage production.
- b. Spring winds during the period February through June are an important part of the weather pattern, but are not as damaging to this site as they are to adjoining sites. Late winter or early spring moisture may be entirely lost during this time. Storms may be general, moderate winds, but usually reach high velocities for brief periods.
- c. Hot daytime temperatures with afternoon thunderstorm activity are common during the summer months. This is the critical period from the standpoint of principal range forage production. Key range grasses are in a near dormant condition until the advent of summer showers and accompanying high temperatures. Frost-free period for the site extends from early March to early November and, with the exception of annuals, little forage is produced at any other time during the year.

3. TOPOGRAPHY AND ELEVATIONS:

This site is characterized by rather broken terrain but with dominantly gentle slopes. Slopes vary from flat to 10 percent to 15 percent and basaltic extrusions produce a rough surface. Small to large malpais boulders may be present but the site does not assume the sharp topography of "breaks". Elevation range is 4,500 to 5,500 feet.

4. SOILS:

- a. Soils are generally shallow but included are pockets of deeper soils. Surface soils are stony loams. Rock outcrop and associated stoniness provide a rock mantle cover over a high percentage of the surface area.

4. SOILS: (continued)

Runoff is variable. Where surface is generally flat and pocketed little runoff occurs while on steeper portions of the site locally rapid runoff is common. Water is usually concentrated from runoff areas onto adjoining soils, resulting in a complex pattern of production on the site.

b. Soils found on this site include the following:

Graham (like) stony clay loam
Unnamed stony soils.

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Sideoats grama
Black grama
Blue grama
Hairy grama
Bush muhly
Plains bristlegrass
Plains lovegrass
Vine mesquite
Chamise
Green sprangletop
Texas timothy
Tanglehead
Winterfat
Cane beardgrass
Arizona cottontop

Increasers

Three-awn
Tobosa
Sand dropseed
Hairy tridens
Hall's panic
Curly mesquite
Snakeweed
Loco
Fluffgrass
Yucca
Brickelbrush
Wolfberry

Invaders

Mesquite
Allthorn
Creosote bush
Tarbush
Grey thorn

- b. In top condition, plant composition is about 70 percent to 75 percent of the following decreaser species: Black grama, bush muhly, sideoats grama, blue grama, lovegrasses, bristlegrass, and hairy grama. Vine mesquite may be present on heavier textured soils on soil pockets receiving runoff from surrounding rock extrusions. The site has a mixture of shrub species present but these do not constitute more than 10 to 15 percent of the plant composition. Winterfat, chamise, bricklebrush, squawbush, and wolfberry are included. Three-awn, dropseeds, tobosa, and fluffgrass are present in small percentages not to exceed 10 to 15 percent in the aggregate.

TG Section II-E

RANGE SITE - No. 89

5. POTENTIAL VEGETATION: (continued)

c. Total forage yield varies from _____ pounds per acre to _____ pounds per acre.

d. Density of ground cover is 25 percent.

6. SPECIFIC TYPE LOCATION:

South and west of Animas in Section 25, T 27S, R 20W.
Top of mesa, east of Rio Grande, above San Marcial.
Also on Ladder Ranch southwest of Truth or Consequences.

RANGE CONDITION GUIDE

#89

Range Site Name Malpais Upland (SD-2)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|---------------------|------------------------------------|----------------|---------------|
| | (Count all percent) | (Count no more than percent shown) | % By Wt. | (Count None) |
| 3 | Sideoats grama | Three-awns | 10 | Mesquite |
| 1 | Black grama | Tobosa | 10 | All thorn |
| 1 | Blue grama | Sand dropseed | 5 | Creosote bush |
| 3 | Hairy grama | Hairy tridens | 5 | Tarbush |
| 2 | Bush muhly | Hall's panicum | 5 | Grey thorn |
| 3 | Plains bristlegrass | Curly mesquite | | |
| 3 | Plains lovegrass | Snakeweed | T | |
| 3 | Vine-mesquite | Loco | T | |
| 4 | Chamiza | Fluffgrass | T | |
| 4 | Green sprangletop | Yucca | T | |
| 4 | Texas timothy | Bricklebrush | T | |
| 4 | Tanglehead | Wolfberry | T | |
| 4 | Winterfat | | | |
| 4 | Cane beardgrass | | | |
| 3 | Arizona cottontop | | | |

Maximum total percent 30

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 25 | 20 | 15 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Rocky Mountains (RM-1)

TG Section II-E

RANGE SITE - No. 90

1. RANGE SITE NAME: Malpais Upland (RM-1)

2. CLIMATE:

- a. Climatic conditions for this site are typical of the lower elevational limits of the Rocky Mountains. Average annual precipitation is approximately 16 inches and is received in the form of winter snow and heavy thundershowers during the hottest summer months. Winter moisture is an important facet of this site and determines the production from cool season growers. Summer moisture received during the principal growing season (July, August, and September), determines the production on the principal warm season grower which is blue grama. Although at a moderately high elevation, the climatic features of this site are not too unlike sites at lower elevations in that precipitation amounts fluctuate greatly from year to year. Annual amounts commonly range from around 8 to 25 inches. Spring precipitation the latter part of March may be sufficient some years to contribute greatly to production on both cool and warm season forage plants.
- b. Mountain winds are an important part of the climatic complex of this site because of their indirect effect on soil moisture and translocation of seeds.
- c. The frost-free period is important only in limiting the production of warm season grasses that are present on the site. Snowfall amounts are moderate and this site occupies a position topographically to that of spring-fall range except where it occurs interspersed with Mountain Grassland sites.

3. TOPOGRAPHY AND ELEVATIONS:

Site is characterized by flat to moderately steep topography. It frequently is found as mesa tops where a basaltic cap is present. Slopes are less than 5 percent. The site terrain may be interrupted by extrusions of basalt, lending a rough or choppy appearance to the topography. Elevational range is 6,500 to 7,500 feet.

4. SOILS:

- a. Soils are heterogeneous both as to depth and surface texture. The prevailing or dominant condition is shallow to moderately deep soils with

4. SOILS: (continued)

stony loam to stony clay loam surface soil textures. A basaltic stone cover typically exists over portions of the site where igneous extrusions occur. The site may exhibit a pocket effect or an admixture of rocky outcroppings and areas of deeper soil. Water intake rates are moderate to high. The site is dominantly protected from erosion by a rock or stone mantle.

- b. Typical soils found on this site include the following:

Prieta stony loam
Apache stony loam

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Western wheatgrass
Indian ricegrass
Junegrass
Pine dropseed
Arizona fescue
Mountain muhly
Sideoats grama
Vine mesquite

Increasers

Blue grama
Hairy grama
Galleta
Sand dropseed
Mesa dropseed
Wire grass
Mat muhly
Three-awn
Snakeweed
Horsebrush
Rabbitbrush

Invaders

Sleepy grass

- b. Decreasers make up a minimum of 75 percent of the plant composition.
- c. On this site blue grama may make up 25 percent of the total plant composition although this species is considered to be an increaser. Smaller percentages of western wheatgrass, Indian ricegrass, junegrass, pine dropseed, Arizona fescue and mountain muhly are present. Hairy grama may be present in amounts up to 5 percent. Little bluestem, sideoats grama, and vine mesquite may be present and in the Zuni Mountains deer grass and bull muhly may be found as unimportant species.
- d. Galleta, sand dropseed, and mesa dropseed are present in amounts up to 15 percent of the plant composition. No more than 10 percent of the plant composition is made up of shrubs.

RANGE SITE - No. 90

5. POTENTIAL VEGETATION: (continued)

- e. Total forage yield varies from _____ pounds per acre to _____ pounds per acre.
- f. Density of plant cover is a minimum of 25 percent and plants are evenly spaced with a representation of several age groups.

6. SPECIFIC TYPE LOCATION:

Chivato Mesa - summer pasture of Ignacio Chavez Grant, northeast of Mt. Taylor.
Portion of Lee Ranch summer pasture.

RANGE CONDITION GUIDE

#90

Range Site Name Malpais Upland (RM-1)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|--------------------------|---------------------------------------|-----------|--------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 2 | Western wheatgrass | Blue grama | 25 | Sleepy grass |
| 4 | Indian ricegrass | Hairy grama | 5 | |
| 4 | Prairie Junegrass | Galleta | 5 | |
| 4 | Pine dropseed | Sand dropseed | 5 | |
| 3 | Mountain muhly | Mesa dropseed | 5 | |
| 3 | Arizona fescue | Wire grass | T | |
| 5 | Bottlebrush squirreltail | Mat muhly | T | |
| 4 | Little bluestem | Three-awns | T | |
| 4 | Sideoats grama | Ring muhly | T | |
| 4 | Alkali sacaton | Pingue | T | |
| 5 | Vetch | Sedge | 5 | |
| 4 | Vine-mesquite | Rabbitbrush | 5 | |
| 5 | Winterfat | Snakeweed | T | |
| 5 | Chamiza | Horsebrush | 5 | |
| 5 | Deergrass | | | |
| 5 | Bullgrass | | | |

Maximum total percent 50

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 25 | 20 | 20 | XX |

Approximate Air-Dry Forage Yields per Acre By:

Range Condition Classification
Excellent Good Fair Poor

Favorable Years

Unfavorable Years

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Western Plateaus and Mesas (WP-1, WP-2)

TG Section II E

RANGE SITE - No. 92

1. RANGE SITE NAME: Malpais Breaks (WP-1, WP-2)

2. CLIMATE:

- a. The precipitation ranges from 10 to 14 inches, most of which occurs through the summer growing season of July, August, and September. Torrential rains are common with high runoff when vegetative cover is sparse.
- b. Wind velocities are high in this area in comparison to the rest of the United States. High wind during March and April causes much erosion on unprotected areas and evaporation of moisture.
- c. The growing season is 140 days with frost-free period of about 110 days from June 1 to September 30. Low rainfall years result in early frost the last of August. With high rainfall in the summer months, frost will not often occur until September 15 or later. Bluestem (western) wheatgrass and Indian ricegrass will produce in the early spring.

3. TOPOGRAPHY AND ELEVATION:

- a. Dominant slope of the Malpais Breaks is 40 percent with a series of ridges, washes, and hills. Small plateaus, benches, and valleys are interspersed throughout the site.
- b. The site lies in a rainfall belt of 10 to 14 inches at an elevation of 6,000 to 7,500 feet.

4. SOILS:

- a. Most of the surface is a cover of malpais boulders ranging from the size of a baseball at the lower slopes of the breaks and increasing in size at the higher elevations. Thin patchy pockets of loamy soils occur in places. Plant moisture relationship is good, making the site a high vegetative producer even in droughty years.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Rough stony land, basalt

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Blue grama
Galleta
Bluestem (western) wheat-
grass
Sideoats grama
Indian ricegrass
Junegrass
Pine dropseed
Chamiza
Common winterfat

Increasers

Poverty threeawn
Sand dropseed
Ring muhly
Apacheplume
Hairy tridens
Wolfberry
Pinon
Juniper
Sage

Invaders

Loco sp.
Lupine
Whorled milkweed
Horsebrush
Broom snakeweed
Rubber rabbitbrush

- b. The decreaseers make up 75 percent of the vegetation and the remainder is increasers. There may be 10 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers from 15 to 20 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#92

Range Site Name Malpais Breaks (WP-1, WP-2)

| Rating | <u>Decreasers</u> (Count all %) | <u>Increasers</u> (Count no more than % shown) | Max. % By Wt. | <u>Invaders</u> (Count none) |
|--------|------------------------------------|------------------------------------------------------|------------------------|---------------------------------|
| 1 | Blue grama | Poverty threeawn | 5 | Loco |
| 2 | Galleta | Sand dropseed | 10 | Lupine |
| 1 | Bluestem (western) wheatgrass | Ring muhly | 5 | Whorled milkweed |
| 1 | Sideoats grama | Apacheplume | 5 | Horsebrush |
| 3 | Indian ricegrass | Hairy tridens | T | Broom |
| 3 | Junegrass | Wolfberry | T | snakeweed |
| 3 | Pine dropseed | Pinon | 5 | Rubber |
| 4 | Chamiza | Juniper | 5 | rabbitbrush |
| 5 | Common winterfat | Sage | 5 | |

Maximum total percent 25

| | <u>Range Condition Classification</u> | | | |
|-------------------------------------------|---------------------------------------|-------------|-------------|-------------|
| | <u>Excellent</u> | <u>Good</u> | <u>Fair</u> | <u>Poor</u> |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 20 | 15 | 10 | - X |

Approximate Air-Dry Forage Yields per Acre By:

| | <u>Range Condition Classification</u> | | | |
|--------------------------|---------------------------------------|-------------|-------------|-------------|
| | <u>Excellent</u> | <u>Good</u> | <u>Fair</u> | <u>Poor</u> |
| <u>Favorable Years</u> | | | | |
| <u>Unfavorable Years</u> | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Western Plateaus and Mesas (WP-3)

TG Section II-E

RANGE SITE - No. 93

1. RANGE SITE NAME: Malpais Breaks (WP-3)

2. CLIMATE:

- a. Precipitation averages from 13 to 16 inches and ranges from an all time low of 5.8 inches to a record high of 31.17 inches. Approximately one-half of the precipitation occurs during the months of July, August, and September. There are extreme fluctuations from year to year with periodic droughts. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages 1 inch per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. High temperatures, fairly constant winds, and low humidity cause the average annual evaporation to range up to 93 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during June, July, and August. The growing season of the native warm season plants begins after the last frost, April 15 to April 28, and continues as moisture is available until October 16 to November 2, which are the average dates ending the frost free period. Winters are generally mild. Average annual temperatures range from 55°F to 60°F.

3. TOPOGRAPHY AND ELEVATIONS:

The topography of this site is steep to very steep. The steep slopes are generally covered with boulders and raw outcrops of basalt. This site generally offers limited access to livestock unless stock trails are constructed. Elevations vary from 4,500 to 7,000 feet elevations above sea level.

4. SOILS

- a. This site comprises steep, rough escarpment and hills which are littered with basaltic material. Included are pockets of shallow to moderately deep stony clay loam soils. Soil, plant, and moisture relationships are good. The soil is not very susceptible to erosion by water or wind due to the large amount of the surface protected by rocks.

RANGE SITE - No. 93

4. SOILS: (continued)

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Rough stony land, basalt

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legend, the State Soil Series Handbook, or Table 1, Grant County Mapping Symbols, Conservation Needs, July 1959.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Little bluestem
Sidecoats grama
Cane bluestem
Arizona cottontop
Slender grama
Black grama
Bush muhly
New Mexico feathergrass
Bullgrass
Deergrass
Green sprangletop
Plains bristlegrass
Plains lovegrass
True mountain mahogany

Increasers

Blue grama
Hairy grama
Curly mesquite
Threeawns
Tobosa
Wolftail
Bottlebrush squirreltail
Wright Eriogonum
Herbaceous sage
Sacahuista
Rabbitbush
Agave
Sotol
Skunkbush sumac
Cactus
Mescal acacia
Catclaw
Feather dalea
Banana yucca
Globemallow
Loco
Threadleaf groundsel
Western wallflower
Shrub liveoak
Pinon-juniper
Apache plume
Mock-orange
Wright lippia

Invaders

Mesquite
Burroweed
Fluffgrass

TG Section II-E

RANGE SITE - No. 93

5. POTENTIAL VEGETATION: (continued)

- b. The decreasers make up 50 percent of the vegetation and the remainder may be increasers. There may be 25 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Herbage covers 20 to 25 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#93

Range Site Name Malpais Breaks (WP-3)

| Rating | Decreasers (Count all percent) | Increasers (Count no more than percent shown) | Max. % | Invaders (Count None) |
|--------|-----------------------------------|-----------------------------------------------------|-----------|--------------------------|
| | | | By Wt. | |
| 1 | Sidecoats grama | Shrub live oak | 5 | Mesquite |
| 2 | Black grama | Pinon-Juniper | 5 | Burroweed |
| 3 | Little bluestem | Bottlebrush squirreltail | 5 | Annuals |
| 3 | Slender grama | Squirreltail | 5 | Fluffgrass |
| 3 | Bush muhly | Wright Eriogonum | 5 | |
| 3 | Bullgrass | Sacahuista | 5 | |
| 3 | Deergrass | Feather dalea | 5 | |
| 3 | Plains lovegrass | Curly mesquite | 15 | |
| 4 | Cane bluestem | Tobosa | 15 | |
| 4 | Arizona cottontop | Wolftail | 25 | |
| 4 | Green sprangletop | Blue grama | 50 | |
| 5 | New Mexico feathergrass | Hairy grama | 50 | |
| 5 | Plains bristlegrass | Broom snakeweed | T | |
| 5 | True mountain mahogany | Threeawns | T | |
| | | Herbaceous sage | T | |
| | | Rabbitbush | T | |
| | | Agave | T | |
| | | Sotol | T | |
| | | Skunkbush sumac | T | |
| | | Cactus | T | |
| | | Mescat acacia | T | |
| | | Catclaw | T | |
| | | Banana yucca | T | |
| | | Globemallow | T | |
| | | Loco | T | |
| | | Threadleaf groundsel | T | |
| | | Western wallflower | T | |
| | | Apache plume | T | |
| | | Mock-orange | T | |
| | | Wright Lippia | T | |

Maximum total percent 50

Range Condition Classification

| | Excellent | Good | Fair | Poor |
|-------------------------------------------|-----------|-------|-------|------|
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 20 | 15 | 10 | Any |

Approximate Air-Dry Forage Yields per Acre By:

Range Condition Classification

Excellent Good Fair Poor

Favorable Years

Unfavorable Years

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-1)

TG Section II-E

RANGE SITE - No. 94

1. RANGE SITE NAME: Malpais Breaks (SD-1)

2. CLIMATE:

- a. Average annual precipitation is approximately 10 inches and about 50 percent of this amount is received in the form of intense thunderstorm activity during the main growing season of July, August, and September. The climate factors for this site favor the warm season growers, but edaphic factors favor post climax type of vegetation. Although the important moisture from a range forage standpoint is received during the summer months, winter snowfall and rains may augment production considerably because of the variety of plant species present. During January some snow is usually received but rarely becomes a problem in the movements of livestock. This site provides some protection for livestock during winter and early spring stormy periods. Extreme fluctuations in annual or seasonal precipitation result in corresponding fluctuation in range forage production. Amounts of .08 inches for one 6-month period as compared to 2.08 inches received in a 3-day period have been recorded. The site does provide early spring forage because of higher soil temperatures created by retention of solar heat by the site. Wintertime temperature recordings of below zero degrees are not uncommon and may occur in early December. Summertime temperatures may exceed 100°F for brief periods in June, July or August.
- b. Evaporation rates are high, particularly when hot daytime temperatures combine with high velocity winds.
- c. Daily temperature range is great also with a 50°F range not being unusual. Corrected mean daily water loss averaged 56.6 m l per atmometer during July and 49.6 during August for locations near this site.

3. TOPOGRAPHY AND ELEVATIONS:

Topography is steep to precipitous. The site ordinarily is represented by a mesa break where the principal or overlying parent material is basalt or basic igneous rock. Slopes range from 25 percent to 75 percent with any portion steeper than 75 percent being considered as waste insofar as range use is concerned. Lower intermediate slopes to this site, with slopes less than 25 percent, are considered Malpais Upland Site. Elevation ranges from 5,500 feet to 7,000 feet. The site may be represented by a series of benches or natural rock terraces.

RANGE SITE - No. 94

4. SOILS:

- a. Soils are stony clay loam on the surface and quite variable in depth. Large boulders and basaltic outcrops are common throughout the site.
- b. Intake rates are moderate to high. Storage capacity for water is low, except on benches.. Soils are mapped as the following rough, stony basalt and type:

Miscellaneous land types
Basalt materials

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Sideoats grama
Black grama
Blue grama
Hairy grama
Bush muhly
Slender grama
Arizona cottontop
Cane beardgrass
Silver beardgrass
Vine mesquite
Texas timothy
Parosella
Little bluestem
Green sprangletop
Squirreltail
Plains bristlegrass
Indian ricegrass
Alkali sacaton
Needle & threadgrass
Western wheatgrass
Winterfat
Chamiza
Junegrass

Increasers

Galleta
Sand dropseed
Mesa dropseed
Spike dropseed
Three-awn
Ring muhly
Mormon tea
Wolfberry
Cholla
Prickly pear
Yucca
Hairy tridens
Buckwheat
Pappusgrass

Invaders

Fluffgrass
Snakeweed
Rabbitbrush
Smoke bush
Sandsage
Mesquite

- b. Vegetation is characterized by the presence of a variety of palatable grasses, forbs, and shrubs. Black grama, blue grama, hairy grama, side-oats grama, Texas timothy, and bush muhly are the principal

RANGE SITE - No. 94

5. POTENTIAL VEGETATION: (Continued)

decreasers present and, combined with little bluestem, Indian ricegrass, needle and thread grass, galleta, and dropseeds, make up at least 60 percent of the total vegetative composition. Shrub species, including winterfat, Apache plume, squawbush, wolfberry, yucca, and peabush (feather dalea) may occupy as much as 30 to 40 percent of the composition. The site ordinarily is expected to support a fair stand of semi-desert shrub species but not to exceed the above amount.

c. The site is capable of producing _____ pounds per acre.

d. Density of ground cover is quite limited due to the presence of a rock mantle. A ground cover of 25 percent or one-fifth, is the maximum to be expected.

6. SPECIFIC TYPE LOCATION:

LaBajada Hill, south of Santa Fe, also breaks north of Santa Ana Pueblo.

RANGE CONDITION GUIDE

#94

Range Site Name Malpais Breaks (SD-1)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|--------------------------|---------------------------------------|-----------|----------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| | Sideoats grama | Galleta | 10 | Snakeweed |
| | Black grama | Sand dropseed) | | Rabbitbrush |
| | Blue grama | Mesa dropseed) | 10 | Smokebush |
| | Hairy grama | Spike dropseed) | | Sand sagebrush |
| | Bush muhly | Three-awn | 5 | Mesquite |
| | Slender grama | Ring muhly | T | Fluffgrass |
| | Arizona cottontop | Wolfberry | T | Mormon tea |
| | Cane beardgrass | Cholla | T | |
| | Silver beardgrass | Prickly pear | T | |
| | Vine-mesquite | Yucca | T | |
| | Texas timothy | Hairy tridens | 10 | |
| | Feather dalea | Buckwheat | T | |
| | Little bluestem | Pappusgrass | 5 | |
| | Green sprangletop | | | |
| | Bottlebrush squirreltail | | | |
| | Plains bristlegrass | | | |
| | Indian ricegrass | | | |
| | Alkali sacaton | | | |
| | Needle and thread | | | |
| | Western wheatgrass | | | |
| | Winterfat | | | |
| | Chamiza | | | |
| | Prairie junegrass | | | |
| | Apache plume | | | |
| | Skunkbrush | | | |
| | Sumac | | | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 75-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 20 | 15 | 10 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-1)

TG Section II-E

RANGE SITE - No. 95

1. RANGE SITE NAME: Malpais Breaks (SD-2)

2. CLIMATE:

- a. Precipitation averages from 8 to 12 inches and ranges from an all time low of 2.9 inches to a record high of 25.7 inches. The greater part occurs during the months of July, August, and September. There are extreme fluctuations from year to year, with periodic droughts. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages less than half an inch per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. These high winds in March, April, and May cause extensive erosion on unprotected soils. High temperatures, fairly constant winds, and low humidity cause the average annual evaporation to range up to 107 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during July, August, and September. The growing season of the native warm season plants begins after the last frost, March 29 to April 23, and continues as moisture is available until October 15 to November 12, which are the average dates ending the frost free period. Winters are generally mild; however, there is a recorded low of -10°F. The maximum summer temperature on record is 110°F. Average annual temperatures range from 58°F to 60°F.

3. TOPOGRAPHY AND ELEVATIONS:

Topography is rough and broken, strewn with rock and boulders of varying size. Slopes may vary from 20 to 70 percent. Areas over 70 percent are considered inaccessible and therefore classed as wasteland. Accessibility to this site is usually difficult for cattle. Elevations range from 3,800 to 6,000 feet.

4. SOILS:

- a. Soils are stony loams and stony clay loams. Large boulders and basaltic outcrops are common. Areas are mapped as rough stony land types. The mantle of rocks and boulders mulch the area and reduce evaporation. The dark color of the malpais absorbs heat and this site may green up sooner than other sites in the spring. Intake rates are usually good resulting in a favorable plant, soil, and moisture relationship.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Rough stony land, basalt

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legend, or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Sideoats grama
Black grama
Bush muhly
Cane bluestem
Slender grama
Plains lovegrass
Blue grama
Hairy grama
Bull grass
Deer grass
Arizona cottontop
New Mexico feathergrass
Vine mesquite

Increasers

Tobosa
Threeawns
Slender tridens
Curly mesquite
Wright Eriogonum
Apache plume
Shrub live oak
Sotol
Cactus
American tarbush
Condalia
Banana yucca
Loco
Broom snakeweed
Mescat acacia
Wright lippia
Curly mesquite

Invaders

Mesquite
Creosotebush
Mariola
Burroweed
Fluffgrass

RANGE SITE - No. 95

5. POTENTIAL VEGETATION: (continued)

- b. The decreasers make up 60 percent of the vegetation and the remainder may be increasers. There may be 15 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is 700 to 950 pounds per acre. *
- d. Herbage covers 15 to 20 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

Cedar Knob in NE 1/4 of Sec. 34, T 24S, R 18W, on Muir Ranch, Hidalgo County.
Hills in Sec. 11, T 21S, R 21W, NE of Summit in Hidalgo County.

* Based on limited plot clippings and estimates.

RANGE CONDITION GUIDE

#95

Range Site Name Malpais Breaks (SD-2)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|----------------------|------------------------------------|-----------|--------------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Sideoats grama | Wright Eriogonum | 5 | Creosotebush |
| 1 | Black grama | Apache plume | 5 | Mesquite |
| 2 | Bush muhly | Shrub liveoak | 5 | Mariola Parthenium |
| 3 | Cane bluestem | Curly mesquite | 10 | Fluffgrass |
| 3 | Slender grama | Slim tridens | 10 | Burroweed |
| 3 | Plains lovegrass | Threeawns | 15 | |
| 3 | Blue grama | Tobosa | 20 | |
| 3 | Hairy grama | Catclaw | T | |
| 4 | Bull grass | Sotol | T | |
| 4 | Deer grass | Cactus | T | |
| 5 | Arizona cottontop | American tarbush | T | |
| 5 | New Mexico | Condalia | T | |
| | feathergrass | Soaptree yucca | T | |
| 5 | Texas bluestem | Loco | T | |
| 5 | Green sprangletop | Broom snakeweed | T | |
| 5 | Vine-mesquite | Mescat acacia | T | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 15 | 10 | 5 | Any |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 700 | | | |
| Unfavorable Years | | | | |

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I.W.D.

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-3)
High Plains (HP-3)

TG Section II-E

RANGE SITE - No. 95a

1. RANGE SITE NAME: Malpais Breaks (SD-3) (HP-3)

2. CLIMATE:

- a. Arid to semi-arid climate with an annual precipitation for this resource area averaging from 11 to 15 inches. The wettest year on record was at Ft. Sumner (41.37 inches) and the driest year was at Carlsbad (2.95 inches). Approximately 75 percent of the annual rainfall occurs from May to October inclusive. June, July, August, and September are the months of highest rainfall usually. Summer rainfall is characterized by torrential thundershowers of high intensity and short duration that produce high runoff from unprotected soils. There are extreme fluctuations in the amount of precipitation from year to year, and periodic droughts have occurred, some lasting for 4 years or longer. More years of below average rainfall can be expected than those above the average precipitation. Winter moisture may occur in the form of rain and/or snow and usually averages less than half an inch per month. When snow occurs, it melts quickly, and snow cover persisting as long as one week is unusual.
- b. Wind velocities in this area are high. February, March, April, and May are characterized by frequent wind storms with velocities in excess of 50 miles per hour, causing severe wind erosion on soils unprotected by adequate vegetation. Humidity is low and evaporation is high, averaging from 70 to 85 inches to in excess of 120 inches (from an evaporation pan).
- c. The frost free season of this sub-area ranges from about 187 days at Ft. Sumner in the northern part to 228 days at Carlsbad Caverns in the southern part. The growing season of the native warm season plants begins after the last frost, April 2 to 19 (South to North) and continues as moisture is available until the latter part of October or the first of November ending the frost free period. Winters are characteristically warm and open, with occasional "northers" dropping the temperature to 0°F or lower for short periods of time in about one-third of the years on record. Occasional and infrequent temperatures as low as -30°F have occurred. Summers are hot with temperatures of over 105°F occurring frequently from May through September. The annual average temperature varies from 59°F at Roswell to 63°F at Carlsbad.

3. TOPOGRAPHY AND ELEVATIONS:

Topography is rough and broken, strewn with rock and boulders of varying size. The areas included in this site are the railroad and Sardine Mountain northeast of Roswell. Elevation ranges from 3,600 to 4,000 feet.

RANGE SITE - No. 95a

4. SOILS:

- a. Soils are stony loams and stony clay loams. Large boulders and basaltic outcrops are common. Soils are mapped as rough stony land forms. The mantle of rocks and boulders mulch the area and reduce evaporation. The dark color of the malpais absorbs heat and this site may green up sooner than other sites in the spring. Intake rates are usually good, resulting in a favorable plant, soil, and moisture relationship.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Rough stony land, basalt

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legends or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Sideoats grama
Black grama
Blue grama
New Mexico feathergrass
Vine-mesquite
Little bluestem

Increasers

Tobosa
Threeawns
Loco
Prickly pear
Hairy grama
Buffalograss
Little soapweed

Invaders

Fluffgrass
Mesquite
Burrograss
Annuals

The decreaseers make up 80 percent of the vegetation and the remainder may be increasers.

- b. The potential species for this site are sideoats grama, blue grama, New Mexico feathergrass, and little bluestem, threeawns, hairy grama, and buffalograss are important increasers.
- c. Annual herbage yields based on plot clippings and weights vary from 900 pounds per acre in favorable years to 200 pounds per acre in less favorable years when the site is in excellent condition. *

* Based on limited clipping data and estimates.

TG Section II-E

RANGE SITE - No. 95a

5. POTENTIAL VEGETATION: (continued)

d. Basal herbage covers 10 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

Railroad Mountain SE of Elkins, New Mexico, 6 miles.

RANGE CONDITION GUIDE

#95a

Range Site Name Malpais Breaks (SD-3)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|-------------------------|---------------------------------------|-----------|--------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Sideoats grama | Tobosa | 5 | Fluffgrass |
| 1 | Black grama | Threeawns | 15 | Mesquite |
| 2 | Blue grama | Loco | T | Burrograss |
| 3 | New Mexico feathergrass | Prickly pear | 5 | Annuals |
| 2 | Vine-mesquite | Hairy grama | 15 | |
| 1 | Little bluestem | Buffalograss | 5 | |
| | | Little soapweed | T | |

Maximum total percent 20

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 10 | 10 | 5 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 900 | | | |
| Unfavorable Years | 200 | | | |

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E.C.S.

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Rocky Mountains (RM-1)

TG Section II-E

RANGE SITE - No. 96

1. RANGE SITE NAME: Malpais Breaks (RM-1)

2. CLIMATE:

- a. Climate is typical of the southern extension of the Rocky Mountains that is included above 7,000 feet in elevation. Summer and winter amounts of precipitation are about equal, totaling approximately 16 to 18 inches annually. Fluctuations in precipitation amounts are wide by years, resulting in variability in forage production that is similar to, but not as drastic as that on sites at lower elevations. High intensity thundershowers are common during July, August, and September, while more gentle general rainstorms occur during spring and fall months. Winter snowfall may result in accumulation amounting to more than 12 inches and during prolonged cold periods of below zero temperatures, snow may remain on the site for several weeks. Natural absorption of heat by basalt rocks, combined with protection afforded by topography, tend to create protective areas for livestock within the site. The site, because of climatic factors, however, is to be considered principally for summer use.
- b. Mountain winds are an important facet of the climatic complex of this site because of their indirect effect on soil moisture and translocation of seed. Although evaporation losses from sites at lower elevations range up to 100 inches annually, losses from this site probably do not exceed 40 to 45 inches for the 6 warmer spring, summer, and fall months.
- c. The site produces both cool and warm season species and the frost-free period which is less than 100 days is important only in limiting the volume production of the warm season species. This site, because of its position topographically and soil conditions, represents a transition from semi-arid to humid mountain climate and where interspersed with Mountain Grassland and Dry Mountain Grassland may include some characteristics of each. Stage of growth for key species on this site may be well ahead of that for the same species on adjoining mountain sites.

3. TOPOGRAPHY AND ELEVATIONS:

Topography is similar to that of "breaks" sites at lower elevations. The site is ordinarily represented as accessible escarpments not in excess of 75 percent slope. These escarpments may take the form of a series of

3. TOPOGRAPHY AND ELEVATIONS: (continued)

natural benches separated by basaltic outcroppings. Where the benches are extensive they become Malpais Upland (RM-1) range site. Elevation varies from 6,500 feet up to 8,000 feet in the northern mountains, and from 7,000 feet to 8,500 feet in the central mountains.

4. SOILS:

a. Soils are dominantly stony clay loams, shallow to moderately deep. The presence of various sized stones or boulders on the surface is a distinctive characteristic of portions of the site. Water intake rates are moderate to high except where bare rock is present. Erosion by gravity is a factor important in the vegetative development on this site. Except for the deeper pockets of soil, water holding capacity of the site is low. On the steeper, rockier portions which may be practically considered waste insofar as range use is concerned, runoff rates are high.

b. Typical soils include the following:

Miscellaneous land types
Basalt materials

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Western wheatgrass
Slender wheatgrass
Junegrass
Pine dropseed
Mountain muhly
Arizona fescue
Thurber's fescue
Squirreltail
Little bluestem
Sideoats grama
Mutton grass
Alkali sacaton
Timothy
Metcalf's muhly
Oatgrass
Vetch

Increasers

Blue grama
Hairy grama
Galleta
Dropseeds
Three-awn
Ring grass
Pingue
Sedges
Snakeweed
Oakbrush

Invaders

Sleepy grass
Rabbitbrush
Kentucky bluegrass

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Rocky Mountains (RM-1)

TG Section II-E

RANGE SITE - No. 96

1. RANGE SITE NAME: Malpais Breaks (RM-1)

2. CLIMATE:

- a. Climate is typical of the southern extension of the Rocky Mountains that is included above 7,000 feet in elevation. Summer and winter amounts of precipitation are about equal, totaling approximately 16 to 18 inches annually. Fluctuations in precipitation amounts are wide by years, resulting in variability in forage production that is similar to, but not as drastic as that on sites at lower elevations. High intensity thundershowers are common during July, August, and September, while more gentle general rainstorms occur during spring and fall months. Winter snowfall may result in accumulation amounting to more than 12 inches and during prolonged cold periods of below zero temperatures, snow may remain on the site for several weeks. Natural absorption of heat by basalt rocks, combined with protection afforded by topography, tend to create protective areas for livestock within the site. The site, because of climatic factors, however, is to be considered principally for summer use.
- b. Mountain winds are an important facet of the climatic complex of this site because of their indirect effect on soil moisture and translocation of seed. Although evaporation losses from sites at lower elevations range up to 100 inches annually, losses from this site probably do not exceed 40 to 45 inches for the 6 warmer spring, summer, and fall months.
- c. The site produces both cool and warm season species and the frost-free period which is less than 100 days is important only in limiting the volume production of the warm season species. This site, because of its position topographically and soil conditions, represents a transition from semi-arid to humid mountain climate and where interspersed with Mountain Grassland and Dry Mountain Grassland may include some characteristics of each. Stage of growth for key species on this site may be well ahead of that for the same species on adjoining mountain sites.

3. TOPOGRAPHY AND ELEVATIONS:

Topography is similar to that of "breaks" sites at lower elevations. The site is ordinarily represented as accessible escarpments not in excess of 75 percent slope. These escarpments may take the form of a series of

RANGE SITE - No. 96

3. TOPOGRAPHY AND ELEVATIONS: (continued)

natural benches separated by basaltic outcroppings. Where the benches are extensive they become Malpais Upland (RM-1) range site. Elevation varies from 6,500 feet up to 8,000 feet in the northern mountains, and from 7,000 feet to 8,500 feet in the central mountains.

4. SOILS:

a. Soils are dominantly stony clay loams, shallow to moderately deep. The presence of various sized stones or boulders on the surface is a distinctive characteristic of portions of the site. Water intake rates are moderate to high except where bare rock is present. Erosion by gravity is a factor important in the vegetative development on this site. Except for the deeper pockets of soil, water holding capacity of the site is low. On the steeper, rockier portions which may be practically considered waste insofar as range use is concerned, runoff rates are high.

b. Typical soils include the following:

Miscellaneous land types
Basalt materials

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Western wheatgrass
Slender wheatgrass
Junegrass
Pine dropseed
Mountain muhly
Arizona fescue
Thurber's fescue
Squirreltail
Little bluestem
Sideoats grama
Mutton grass
Alkali sacaton
Timothy
Metcalf's muhly
Oatgrass
Vetch

Increasers

Blue grama
Hairy grama
Galleta
Dropseeds
Three-awn
Ring grass
Pingue
Sedges
Snakeweed
Oakbrush

Invaders

Sleepy grass
Rabbitbrush
Kentucky bluegrass

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--High Plains (HP-1)
Central Plains and Valleys (CP-1)

TG Section II-E

RANGE SITE - No. 97

1. RANGE SITE NAME: Sandstone Breaks (HP-1, CP-1)

2. CLIMATE:

- a. Annual precipitation averages from 15 to 18 inches. Approximately three-fourths of the annual average occurs during the period April to October inclusive. July and August most commonly receive the highest monthly totals. There are extreme fluctuations from year to year with recurrent droughts that have lasted as long as 4 years. Annual rainfall in the area has fluctuated from a high of 37.65 inches to a low of 5.54 inches in a 10-year period. Summer rainfall is characterized by torrential thundershowers producing high runoff from unprotected soils. Winter precipitation, which averages about 1/2 inch per month, usually occurs in the form of snow.
- b. Wind velocities for the area are high, averaging about 4.5 miles per hour on an annual basis. Spring windstorms occur frequently with velocities in excess of 45 miles per hour, causing severe wind erosion on soils inadequately protected by vegetation. Humidity is low and evaporation high, averaging 60 inches or more during the period April through October.
- c. The frost free season ranges from about 135 days at the higher elevations to about 165 days at lower elevations. The principal growing season for native plants occurs from May 15 to September 15 if sufficient moisture is available. Sub zero temperatures will usually occur every year with minimums of -20°F not uncommon. Summers are characterized by warm days and cool nights with maximum temperatures seldom reaching 100°F. The percentage of sunshine is high, averaging about 80 percent of the possible amount.

3. TOPOGRAPHY AND ELEVATIONS:

This site consists of steep rocky slopes that are in the nature of escarpments between the Higher Uplands and lower lying valley or plains and along the sides of isolated buttes and mesas within the Plains areas. This site occurs at elevations ranging from approximately 4,000 to 7,000 feet.

RANGE SITE - No. 97

4. SOILS:

a. These areas are mapped as miscellaneous land types. Soils are quite variable in depth but are principally very shallow.

b. Significant soils of this site are:

Rough stoney land - sand stone materials

c. Detailed descriptions of these soils are contained in the legend for Standard Soil Surveys in Colfax, Harding, Quay, and Union Counties.

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Little bluestem
Sideoats grama
Black grama
Switch grass
Bulb panicum
Needle and thread
New Mexico feathergrass
Breaks lovegrass
Spike muhly
Deer grass
Pinon ricegrass

Increasers

Blue grama
Hairy grama
Wolf tail
Galleta
Three-awns
Fringed sage
Skunkbush sumac
Juniper
Pinon
Snake weed
Mariola

Invaders

Ring grass
Sleepy grass
Buffalo grass
Cactus
Rabbit bush

b. 60 percent of the ground cover consists of decreasing species. Pinon juniper is a part of the climax vegetation of this site. Forage species occurs as an understory of grasses, forbs, and browse species.

c. Yields - 800 to 1,200 pounds air dry herbage per acre.

d. Ground cover 20 to 25 percent.

6. SPECIFIC TYPE LOCATION:

David Hill-Harding County along NM 39.

RANGE CONDITION GUIDE

#97

Range Site Name Sandstone Breaks (HP-1, CP-1)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|-------------------------|---------------------------------------|-----------|---------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 2 | Little bluestem | Blue grama | 25 | Ring muhly |
| 2 | Sideoats grama | Hairy grama | 5 | Galleta grass |
| 3 | Black grama | Wolf tail | 5 | Sleepy grass |
| 5 | Switch grass | Three-awns | T | Buffalo grass |
| 5 | Bulb panic | Fringed sagebrush | 5 | Cholla cactus |
| 5 | Needle and thread | Mariola | T | Prickly pear |
| 5 | New Mexico feathergrass | Skunkbush sumac | T | |
| 5 | Breaks lovegrass | Oak | 5 | |
| 5 | Spike muhly | Mountain mahogany | 5 | |
| 5 | Deer grass | Broom snakeweed | T | |
| 5 | Pinon ricegrass | | | |

Maximum total percent 35

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 20 | 20 | 15 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 1,200 | | | |
| Unfavorable Years | 800 | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Western Plateaus and Mesas (WP-1, WP-2)

TG Section II E

RANGE SITE - No. 98

1. RANGE SITE NAME: Sandstone Breaks (WP-1, WP-2)

2. CLIMATE:

- a. Precipitation varies from 10 to 15 inches per year. The major portion falls as rain in the months of July, August, and September. Rainfall comes generally as high intensity thunderstorms and runoff may be high if vegetative cover is poor. Some spring moisture is received, but amounts of winter moisture are quite light. June is ordinarily the driest month for the growing season.
- b. Windy spring weather is experienced from February to June.
- c. The growing season averages about 140 days. Little forage growth is expected until July when the summer rains usually start. Snowfall may be moderately heavy some years in the upper elevations of the site. Early or late winter moisture in the form of light rain accounts for a very minor part of the moisture and temperatures are too cold for any appreciable amount of vegetative growth.

3. TOPOGRAPHY AND ELEVATION:

- a. The range site includes rough topography with intermittent washes. The site is quite often adjacent to higher mountain slopes. Exposures in this site are not mapped out as subdivisions of the site. Topography may also include steep, rocky, waste areas as a site intermixture. The site may occur completely separate from a range of mountains. Most of the site area is accessible for grazing animals, but considerable variation in slope and exposure is encountered. Topography is rough and includes slopes of 15 percent to 40 percent.
- b. This range site occurs from 5,500 to 7,500 feet elevation.

4. SOILS:

- a. These soils are dominantly shallow to very shallow soils with stony or gravelly loam textures. Pockets of moderately deep soil occur throughout the site. Surface texture may vary from loamy sand to sands near the sandstone outcrops and escarpments. Outcroppings of sandstone compose 25 to 30 percent of this site. With good vegetative cover, erosion and runoff are slight. Soils of the site are quite variable in depth, but are typically shallow and coarse-textured, with pockets of moderately deep soil included. Varying amounts of bare rock are usually exposed in escarpments.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Travesilla stony loam
Sandstone rockland

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|--------------------------------|--------------------|-----------------|
| Blue grama | Sand dropseed | Loco |
| Indian ricegrass | Sand sagebrush | Lupine |
| Sideoats grama | Poverty threeawn | |
| Needleandthreadgrass | Broom snakeweed | |
| Bluestem (western) wheat-grass | Sandhill muhly | |
| Chamiza | Rubber rabbitbrush | |
| Apacheplume | Cactus spp. | |
| Galleta | Sleepygrass | |
| Little bluestem | Pinon | |
| | Juniper | |
| | Longleaf Ephedra | |

- b. The decreaseers make up 50 percent of the vegetation and the remainder is increasers. There is about 10 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers from 10 to 20 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#98

Range Site Name Sandstone Breaks (WP-1, WP-2)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|----------------------|------------------------------|-------------------|--------------|
| | (Count all %) | (Count no more than % shown) | % By Weight | (Count none) |
| 1 | Blue grama | Sand dropseed | 15 | Loco |
| 4 | Indian ricegrass | Sand sagebrush | 10 | Lupine |
| 4 | Sideoats grama | Poverty threeawn | 5 | |
| 4 | Needleandthreadgrass | Broom snakeweed | 5 | |
| 4 | Bluestem (western) | | | |
| | wheatgrass | Spiney muhly | T | |
| 3 | Chamiza | Rubber rabbitbrush | 5 | |
| 5 | Apacheplume | Cactus spp. | 5 | |
| 2 | Galleta | Sleepygrass | T | |
| 5 | Little bluestem | Pinon | 5 | |
| | | Juniper | 5 | |
| | | Longleaf Ephedra | 5 | |

Maximum total percent 50

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 20 | 15 | 10 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-2)

TG Section II-E

RANGE SITE = No. 98a

1. RANGE SITE NAME: Sandstone Breaks (SD-2)

2. CLIMATE:

- a. Precipitation averages from 8 to 12 inches and ranges from an all time low of 2.9 inches to a record high of 25.7 inches. The greater part occurs during the months of July, August, and September. There are extreme fluctuations from year to year, with periodic droughts. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages less than half an inch per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. These high winds in March, April, and May cause extensive erosion on unprotected soils. High temperatures, fairly constant winds, and low humidity cause the average annual evaporation to range up to 107 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during July, August, and September. The growing season of the native warm season plants begins after the last frost, March 29 to April 23, and continues as moisture is available until October 15 to November 12, which are the average dates ending the frost free period. Winters are generally mild, however, there is a recorded low of -10°F. The maximum summer temperature on record is 110°F. Average annual temperatures range from 58°F to 60°F.

3. TOPOGRAPHY AND ELEVATIONS:

The topography is rough and broken with many outcrops of sandstone on the steeper slopes. Slopes may range from 25 to 70 percent. Elevations vary from 4,200 to 6,500 feet above sea level.

4. SOILS:

- a. The significant soils which characterize this site are sandy loams and sandy clay loams 10 inches or less in depth. Outcrops of sandstone comprise much of the landscape. Water intake rates are good but water holding capacity is low due to the shallow soil. Erosion may be a problem even though there is a large amount of exposed rock.

- b. The significant soils in this site may include one or more of the following soils:

SERIES, TYPES, AND PHASES

(TG Section II-E
(Range Site No. 98a

Rough broken land, sandstone

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legend, or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Black grama
Sidecoats grama
Bush muhly
Blue grama
Hairy grama
Deer grass

Increasers

Tobosa
Tridens spp.
Threeawns
Sand dropseed
Chamiza
Common winterfat
Juniper
Skunkbush sumac
Mescat acacia
Broom snakeweed
Cactus
Longleaf Ephedra
Soaptree yucca
Wolfberry

Invaders

Mesquite
Creosotebush

- b. The decreaseers make up 50 percent of the vegetation and the remainder may be increasers. There may be 15 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is 800 to 1,100 pounds per acre. *
- d. Herbage covers from 15 to 20 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

The rough hills around Ash Creek on the road to Engle, Sierra County.

* Based on limited clippings and estimates.

RANGE CONDITION GUIDE

#98a

Range Site Name Sandstone Breaks (SD-2)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|------------------------------------|-----------|--------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Black grama | Sand dropseed | 5 | Mesquite |
| 1 | Sideoats grama | Juniper | 5 | Fluffgrass |
| 1 | Bush muhly | Common winterfat | 10 | |
| 3 | Blue grama | Tridens spp. | 15 | |
| 3 | Hairy grama | Threeawns | 15 | |
| 5 | Deer grass | Chamiza | 15 | |
| | | Tobosa | 20 | |
| | | Skunkbush sumac | T | |
| | | Mescat acacia | T | |
| | | Broom snakeweed | T | |
| | | Cactus | T | |
| | | Longleaf Ephedra | T | |
| | | Soaptree yucca | T | |
| | | Wolfberry | T | |

Maximum total percent 50

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 15 | 10 | 5 | Any |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 800 | | | |
| Unfavorable Years | | | | |

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UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Central Plains and Valleys (CP-1, CP-2, CP-3)

TG Section II-E

RANGE SITE - No. 99

1. RANGE SITE NAME: Stony Hills (CP-1, CP-2, CP-3)

2. CLIMATE:

- a. Annual precipitation averages from 13 to 18 inches. Approximately three-fourths of the annual average occurs during the period April to October inclusive. July and August most commonly receive the highest monthly totals. There are extreme fluctuations from year to year with periodic droughts that have lasted as long as 4 years. Annual rainfall in the area has fluctuated from a high of 37.65 inches to a low of 5.54 inches in a 10 year period. Summer rainfall is characterized by torrential thundershowers producing high runoff from unprotected soils. Winter precipitation, which averages about 1/2 inch per month, usually occurs in the form of snow.
- b. Wind velocities for the area are high, averaging about 4.5 miles per hour on an annual basis. Spring windstorms occur frequently with velocities in excess of 45 miles per hour causing severe wind erosion on soils inadequately protected by vegetation. Humidity is low and evaporation high, averaging 60 inches or more during the period April through October.
- c. The frost free season ranges from about 135 days at the higher elevations to about 165 days at lower elevations. The principal growing season for native plants occurs from May 15 to September 15 if sufficient moisture is available. Sub zero temperatures will usually occur every year with minimums of -20°F not uncommon. Summers are characterized by warm days and cool nights, with maximum temperatures seldom reaching 100°F. The percentage of sunshine is high, averaging about 80 percent of the possible amount.

3. TOPOGRAPHY AND ELEVATIONS:

This site consists of steep Rough Hills, either as the foothills of the higher mountains to the west or as isolated ranges of hills occurring within the plains areas. Elevations range from approximately 5,500 feet to 7,500 feet.

RANGE SITE - No. 99

4. SOILS

a. Soils of this site are predominately shallow, formed from mixed materials of sand stone, shale, and igneous rocks. They have rock, gravel, and boulders on the surface and usually have areas of bare ledges exposed.

b. Significant soils of this series are:

Miscellaneous land types

c. Descriptions for these soils may be found in the descriptive legends for Standard Soil Surveys in Colfax, Harding, and Union Counties.

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Little bluestem
Mountain muhly
Sideoats grama
Big bluestem
Pine dropseed
Pinon ricegrass
Green needlegrass
Deer grass
Western wheatgrass

Increasers

Blue grama
Hairy grama
Wolftail
Galleta
Three-awns
Oak
Mountain mahogany
Juniper
Pinon

Invaders

Annual weeds
Ring muhly
Mat muhly
Sleepy grass
Snake weed

b. This site is characteristically dominated by a pinon-juniper association with an understory of grasses, forbs, and browse. Decreasing species make up 60 percent of the understory cover.

c. Yields: Air dry herbage per acre 800 to 1,000 pounds.

d. Ground cover 25 percent.

6. SPECIFIC TYPE LOCATION:

Range Site Name Stoney Hills (CP-1, CP-2, CP-3)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|---------------------------------------|-----------|--------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 3 | Little bluestem | Blue grama) | 20 | Ring muhly |
| 3 | Mountain muhly | Hairy grama) | | Mat muhly |
| 4 | Sideoats grama | Wolf tail | 5 | Sleepy grass |
| 4 | Big bluestem | Galleta grass | 5 | Snake weed |
| 4 | Pine dropseed | Three-awns | T | Hairy aster |
| 5 | Pinon ricegrass | Oak | 10 | |
| 5 | Green needlegrass | Mountain mahogany | 5 | |
| 5 | Deer grass | Juniper | T | |
| 5 | Western wheatgrass | Pinon | T | |
| | | Golden pea | T | |
| | | Fringed sagebrush | T | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 25 | 25 | 15 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 1,000 | | | |
| Unfavorable Years | 800 | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Northern Desert Valleys and Mesas (ND)
Western Plateaus and Mesas (WP-1, WP-2)

TG Section II E

RANGE SITE - No. 100

1. RANGE SITE NAME: Stony Hills (ND, WP-1, WP-2)

2. CLIMATE:

- a. Annual precipitation varies from 9 to 15 inches. The major portion occurs as rain in the months of July, August, and September. Rainfall occurs generally as high intensity thunder storms and runoff may be high if vegetative cover is poor. Some spring moisture is received, but amounts of winter moisture are quite light. June is ordinarily the driest month for the growing season.
- b. Windy spring weather is common from February to June.
- c. The growing season averages about 140 days. Little forage growth is expected before July when the summer rains usually start. Snowfall may be moderately heavy some years in the upper elevations of the site, but ordinarily is light in the lower elevations where the site merges with the main valleys.

3. TOPOGRAPHY AND ELEVATION:

- a. Topography is hilly and includes slopes of 15 percent to 40 percent. The site includes rough topography with intermittent washes. The site is quite often adjacent to higher mountain slopes. Exposures are numerous in this site and are not mapped out as subdivisions of the site. Topography may also include steep, rocky, waste areas as a site intermixture. The site may occur completely separate from a range of mountains. Most of the site area is accessible to grazing animals, but considerable variation in slope and exposure is encountered, restricting grazing to the less stony portions.

4. SOILS:

- a. Soils included in this site are medium to moderately fine-textured and are generally stony or gravelly throughout the profile. These soils are very shallow with pockets of deeper soils included. The surface has a mantle of stones and water intake rates are medium to high. The rough surface, partially protected by the rock mantle, is resistant to erosion activity. Storage capacity of moisture in these soils is low, but moisture penetration is deep from moderate rains. Water relationships on this site are favorable to the development of a post climax vegetative cover.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Unnamed soils

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Sideoats grama
Galleta
Wolftail barley
Spike muhly
Junegrass
Needleandthreadgrass
Mountain muhly
Blue grama
Hairy grama
Black grama
Little bluestem
Chamiza

Increasers

Poverty threeawn
Fluffgrass
Sand dropseed
Ring muhly
Rubber rabbitbrush
Common winterfat
Broom snakeweed
Gambels oak
Pinon
Apacheplume
Big sagebrush
Pinon
Juniper

Invaders

Lupine
Loco

- b. The decreaseers make up 60 percent of the vegetation and the remainder is increasers. There may be 25 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 20 to 25 percent of the ground.

6. SPECIFIC TYPE LOCATION:

Range Site Name Stony Hills (ND) (WP-1) (WP-2)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|----------------------|------------------------------|----------------|--------------|
| | (Count all %) | (Count no more than % shown) | % By Wt. | (Count none) |
| 3 | Sideoats grama | Poverty threeawn | 5 | Lupine |
| 1 | Galleta | Fluffgrass | T | Loco |
| 5 | Wolftail | Sand dropseed | 10 | |
| 5 | Spike muhly | Ring muhly | T | |
| 5 | Junegrass | Rubber rabbitbrush | T | |
| 5 | Needleandthreadgrass | Common winterfat | 10 | |
| 5 | Mountain muhly | Broom snakeweed | T | |
| 1 | Blue grama | Gambel oak | 5 | |
| 5 | Hairy grama | Pinon | 5 | |
| 3 | Black grama | Apacheplume | T | |
| 5 | Little bluestem | Big sagebrush | 5 | |
| 5 | Chamiza | Pinon | 15 | |
| | | Juniper | 10 | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 20 | 15 | 10 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-4)
Western Plateaus and Mesas (WP-3)

TG Section II-E

RANGE SITE - No. 101

1. RANGE SITE NAME: Stony Hills (SD-4, WP-3)

2. CLIMATE:

- a. Precipitation averages from 13 to 21 inches and ranges from an all time low of 5.8 inches to a record high of 31.17 inches. Approximately one-half of the precipitation occurs during the months of July, August, and September. There are extreme fluctuations from year to year, with periodic droughts. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages from 1 to 1.5 inches per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. High temperatures, fairly constant winds, and low humidity cause the average annual evaporation to range from 90 to 93 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during July, August, and September. The growing season of the native warm season plants begins after the last frost, April 15 to April 29, and continues as adequate moisture is available until October 16 to November 2, which are the average dates ending the frost free period. Winters are generally mild. Average annual temperatures range from 55°F to 60°F.

3. TOPOGRAPHY AND ELEVATIONS:

This site is moderate to steeply sloping with frequent rock outcrops. The slopes may range from 15 to 45 percent. Elevations vary from 4,500 to 6,200 feet above sea level.

4. SOILS:

- a. The significant soils that characterize this site are shallow stony loams and shallow stony clay loams, with occasional areas with deeper pockets of soil. The stony surface protects the surface from erosion. Water intake rates are medium to high and moisture holding capacity is medium.

RANGE SITE - No. 101

4. SOILS: (continued)

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Luzena stony loam
Unnamed stony soils

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legend, or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The potential vegetation is composed of the following:

Decreasers

Black grama
Blue grama
Sideoats grama
Hairy grama
Texas bluestem
Plains lovegrass
Little bluestem
Bush muhly
Mountain muhly
Wolftail
Bull grass
June grass
Tall threeawn
Slender grama
Green sprangletop
New Mexico feathergrass
Spike muhly
Deer grass
Plains bristlegrass
Switchgrass
Bulb panic
Pinon ricegrass
Woolspike balsam scale
Tanglehead
Crinkle awn

Increasers

Curly mesquite
True mountain mahogany
Common winterfat
Tobosa
Threeawns
Shrub live oak
Slim tridens
Ring muhly
Hall panicum
Mat muhly
Apache plume
Feather dalea
Cactus
Catclaw
Broom snakeweed
Wright lippia
Hairy tridens
Whiplash pappusgrass
Skunkbush sumac
Rabbitbush
Loco
Broom baccharis

Invaders

Mesquite
Fluffgrass
Burroweed

RANGE SITE - No. 101

5. POTENTIAL VEGETATION: (continued)

- b. Decreasers make up 65 percent of the potential vegetation and the rest may be increasers. Woody vegetation may make up 15 percent in excellent condition.
- c. Annual herbage yields of this site range from 1,000 to 1,250 pounds air dry forage per acre. *
- d. Herbage covers 25 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

Hills around Tyrone in Grant County.
Hills in San Louis Pass, Hidalgo County.
Hills in the Kingston area, Sierra County.

* Based on limited clippings and estimates.

RANGE CONDITION GUIDE

#101

Range Site Name Stony Hills, (WP-3, SD-4)

| Rating | Decreasers | Increasers | Max. % By Wt. | Invaders |
|--------|----------------------------|------------------------------------|------------------------|--------------|
| | (Count all percent) | (Count no more than percent shown) | | (Count None) |
| 1 | Black grama | Slim tridens | 5 | Mesquite |
| 1 | Blue grama | Ring muhly | 5 | Fluffgrass |
| 1 | Hairy grama | Hall panicum | 5 | Burroweed |
| 1 | Sideoats grama | Red muhly | 5 | |
| 1 | Texas bluestem | Creeping muhly | 5 | |
| 2 | Little bluestem | Apache plume | 5 | |
| 2 | Plains lovegrass | Feather dalea | 5 | |
| 2 | Bush muhly | Cactus | 5 | |
| 3 | Mountain muhly | Catclaw | 5 | |
| 3 | Wolf tail | Broom snakeweed | 5 | |
| 4 | Bull grass | Wright lippia | 5 | |
| 4 | June grass | Tobosa | 10 | |
| 4 | Tall threeawn | Threeawns | 10 | |
| 4 | Slender grama | Shrub live oak | 10 | |
| 4 | Green sprangletop | Common winterfat | 15 | |
| 4 | New Mexico feathergrass | Curly mesquite | 20 | |
| 5 | Spike muhly | True mountain mahogany | 20 | |
| 5 | Deer grass | Hairy tridens | T | |
| 5 | Plains bristlegrass | Whiplash Pappusgrass | T | |
| 5 | Bulb panic | Skunkbush sumac | T | |
| 5 | Switchgrass | Rabbitbush | T | |
| 5 | Pinon ricegrass | Loco | T | |
| 5 | Woolspike balsamscale | Broom baccharis | T | |
| 5 | Elyonurus barbiculmis | | | |
| 5 | Tanglehead | | | |
| 5 | Crinkleawn | | | |

Maximum total percent 35

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 25 | 15 | 10 | Any |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 1,000 | | | |
| Unfavorable Years | | | | |

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UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-2, SD-3)

TG Section II-E

RANGE SITE - No. 102

1. RANGE SITE NAME: Stony Hills (SD-2, SD-3)

2. CLIMATE:

- a. Average annual precipitation for this site ranges from about 9 inches to 12 inches over 50 percent of which is received during the summer months. Precipitation amounts fluctuate widely from year to year with a known low of about 3 inches to a high amount of 25 inches. Summer thunder-shower activity during July, August, and September accounts for a considerable portion of the total precipitation received. Snowfall amounts during the winter season are generally light although infrequently depths of 6 to 12 inches may be experienced briefly. Winter moisture received, either as snow or rain, produces erratic crops of annual weeds and this crop cannot be depended upon. April, May, and June are ordinarily dry months and a critical period in the establishment of vegetation. During a 55 year record of precipitation there were 11 years when total annual amounts ranged from 3.38 inches to 6 inches; 20 years when amounts ranged from 9 to 12 inches; 3 years from 12.01 to 15 inches; 5 years from 15.01 to 18 inches; 2 years from 18.01 to 20.8 inches; and 14 years from 6.1 to 9 inches.
- b. This site is affected by spring winds indirectly by the desiccation of soil moisture. Winds may attain a high velocity during brief periods but moderate velocity may be sustained for a considerable length of time.
- c. January temperatures average approximately 37°F with July temperatures averaging 80°F. Extreme temperatures of over 110°F and -29°F have been recorded. Frost-free period of around 190 to 220 days is enjoyed over a portion of this site area beginning late in March and ending in early November. Only a few cool season growers are present and there is very little forage growth until the advent of summer rains in July.

3. TOPOGRAPHY AND ELEVATIONS:

Site is rough, broken stony land with moderate to steep slopes. The site is usually represented by low hills or foothills of the semi-desert mountains in the southern part of the state. Where this type of topography is extensive, small canyons with steep side slopes are included in the site. The site may have its beginning at the upper limits of upland sites where soils are shallow and slopes moderate, and its culmination in rather smooth

3. TOPOGRAPHY AND ELEVATIONS: (continued)

rounded hills prominent in the landscape but less rugged than semi-desert stony mountains. Slopes are dominantly 10 to 25 percent. Elevational range is 3,800 feet to 6,000 feet.

4. SOILS:

a. Soils found on this site are medium or loamy textured at the surface and generally cobbly or gravelly throughout the profile. Depth varies from shallow to deep. Deeper soils are a matrix of various sized rock even in the substratum. The surface has at least a partial mantle of stone. Water intake rates are high, and storage capacity is medium to low. The rock mantle protects the surface from erosion to some extent but removal of the vegetative covers paves the way for rapid deterioration. Igneous extrusions within the site may considerably reduce the grazing value of the site. Parent materials may be either basic or acid igneous.

b. Significant soils included in the site are:

Luzena gravelly loam
Tortugas stony loam
Luzena stony loam

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Black grama
Blue grama
Hairy grama
Bush muhly
Texas timothy
Needle & thread grass
Sideoats grama
Arizona cottontop
Silver beardgrass
Little bluestem
Desert needlegrass
Deer grass
Little leaf squawbush
Sacaton
Pea bush

Increasers

Beargrass
Tobosa
Mariola
Burrograss
Creosotebush
Three-awn
Ring muhly
Dropseeds
Hairy tridens
Wolfberry
Grey thorn
All thorn
Hall's panic
Brickelbrush
Pappusgrass

Invaders

Tarbrush
Snakeweed
Mesquite
Cholla
Yucca
Tumblegrass
Fluffgrass

5. POTENTIAL VEGETATION: (continued)

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|----------------------|-------------------|-----------------|
| Bull grass | Sotol | |
| Muhlenbergia mundula | Agave | |
| Tanglehead | Catclaw | |
| Green sprangletop | Curly mesquite | |
| Plains bristlegrass | | |
| Cane beardgrass | | |
| Lippia | | |
| Chamiza | | |
| Winterfat | | |

- b. Potential vegetation is approximately 75 percent grass species consisting of a mixture of black grama, blue grama, side-oats grama, bush muhly, hairy grama, cane beardgrass, and Arizona cottontop. South and west slopes support higher percentages of black grama and bush muhly. Side-oats grama and black grama for a good cover over the steeper, stony or gravelly slopes. Shrubs, including littleleaf squawbush, Apache plume, squawbush, feather dalea, yucca, ocotillo, and beargrass are present in amounts up to 15 percent of the total plant composition. Dropseeds, three-awn, tobosa, pappusgrass, Hall's panic, and tridens are represented as increaser species in amounts aggregating about 10 percent of the composition. Lesser amounts of increaser shrubs are present.
- c. The site produces from 450 to 2,500 pounds per acre.
- d. The ground is uniformly covered with perennial grasses except on areas where a solid bare rock mantle exists. Minimum percent of ground cover is approximately 30 percent. The site may support an extremely open stand of juniper or oakbrush.

6. SPECIFIC TYPE LOCATION:

Foothills of "M" Mountain, Socorro; east side of Monument Peak near Lake Valley; hills south of Lordsburg on old Animas highway; 5 miles north of Tularosa on L. A. Richards Ranch; Grandmother Mountains and Burdick Hills and Cedar Mountain Range in southwest Luna County.

RANGE CONDITION GUIDE

#102

Range Site Name Stony Hills (SD-2, SD-3)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|-----------------------|---------------------------------------|-----------|--------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 2 | Black grama | Beargrass | 10 | Tumblegrass |
| 1 | Blue grama | Tobosa | 10 | Snakeweed |
| 5 | Hairy grama | Mariola | T | Tarbush |
| 5 | Bush muhly | Burrograss | T | Mesquite |
| 3 | Texas timothy | Creosote bush | 5 | Cholla |
| 3 | Needle and thread | Three-awn | 10 | Prickly pear |
| 3 | Sideoats grama | Ring muhly | T | Yucca |
| 5 | Arizona cottontop | Fluffgrass | T | |
| 4 | Silver beardgrass | Dropseeds | 5 | |
| 4 | Little bluestem | Hairy tridens | 5 | |
| 5 | Desert needlegrass | Wolfberry | T | |
| 3 | Deergrass | Grey thorn | T | |
| 4 | Littleleaf sumac | All thorn | T | |
| 4 | Sacaton | Hall's panicum | 10 | |
| 5 | Pea bush | Brickelbrush | T | |
| 3 | Bullgrass | Pappus grass | T | |
| 4 | Muhlenbergia mundula | Sotol | 5 | |
| 5 | Tanglehead | Agave | 5 | |
| 4 | Green sprangletop | Catclaw | T | |
| 5 | Plains bristlegrass | Curly Mesquite | 10 | |
| 4 | Cane beardgrass | Cactus | 5 | |
| 5 | Lippia spp. | | | |
| 5 | Chamiza | | | |
| 5 | Winterfat | | | |
| 5 | Woolspike balsamscale | | | |

Maximum total percent 30

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 25 | 15 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 2,500 | | | |
| Unfavorable Years | 450 | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-1)

TG Section II-E

RANGE SITE - No. 103

1. RANGE SITE NAME: Stony Mountains (SD-1)

2. CLIMATE:

- a. Average annual precipitation is approximately 8 to 10 inches of which 45 percent or more is ordinarily received during the principal growing season of July, August, and September. Spring precipitation amounts are meager and an ordinarily dry June makes this a critical season for native plant development. Summer precipitation falls as a result of thunder-shower activity that is usually of short duration but quite intense. Convection currents ordinarily contribute to the formation of local shower activity over the higher elevations. Total annual amounts have varied from 3.78 inches in 1860 to 16.3 inches in 1858 with a calculated average of about 8.4 inches. Slightly higher amounts may be interpolated for this site. Such extremes contribute measurably to the wide fluctuations in forage production. Winter precipitation is also erratic. Some years practically no snow is received while in other years amounts up to around 8 inches are received and may remain on the ground for a period of several weeks. The site provides natural protection for livestock during such inclement weather and since parent soil material is usually basaltic, heat is absorbed making for more rapid snow-melt and a warmer microclimate. Seasonal distribution of moisture received is as follows:

| | | |
|--------|---|------------|
| Spring | - | 20 percent |
| Summer | - | 40 percent |
| Fall | - | 27 percent |
| Winter | - | 13 percent |

- b. Spring winds common from February through June, although less damaging to this site than others, have an indirect effect in their capacity to more rapidly reduce soil moisture.
- c. Temperature extremes vary from about -10°F to 104°F . The growing season actually extends over an approximate period of 198 days beginning in early or mid-April and ending the last of October. A few cool season range plants make both earlier and later growth before and beyond the above dates and during years of favorable winter moisture annuals provide some early feed.

RANGE SITE - No. 103

3. TOPOGRAPHY AND ELEVATIONS:

Site is rough, broken and stony topography. The site is typified as semi-desert mountains arising within semidesert upland or valley topography. Where these semidesert mountains attain an elevation of about 8,000 feet, and pine are present, a different site is encountered. Typical rough mountainous topography, having slopes usually from 25 percent to 75 percent, with steep rocky canyons, is the dominant situation for this site. Elevation ranges from 5,000 to 6,500 feet. The site merges into precipitous, rocky slopes which, when exceeding 75 percent slope, are regarded as waste insofar as range use is concerned.

4. SOILS:

a. Soils of this site are shallow with surface textures ranging from loamy to fine sands. Surfaces are generally stony and parent material is acid igneous, basalt or metamorphic material. Hetrogenity of soils on the site is a characteristic of this site. Where developed soil is present, water intake rates are moderate to high but storage capacity is low. Sixty to 95 percent of the surface is covered by stones of mixed sizes and where soil development is in the form of pockets, soil depth varies generally from a few inches to 20 inches in depth.

b. Significant soils on this site include the following:

Miscellaneous land types

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Black grama
Vine mesquite
Blue grama
Hairy grama
Sidecoats grama
Arizona cottontop
Little bluestem
Indian ricegrass
Bush muhly
Silver beardgrass
Cane beardgrass
Plains bristlegrass

Increasers

Three-awn
Galleta
Buckwheat
Pappusgrass
Yucca
Mesquite
Sand dropseed
Creosotebush
Brickelbrush
Texas crabgrass
Agave
Ring muhly

Invaders

Snakeweed
Rabbitbrush
Smokebush
Fluffgrass
Burrograss

RANGE SITE - No. 103

5. POTENTIAL VEGETATION: (continued)

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|-------------------------|-------------------|-----------------|
| Texas timothy | Dyssodia | |
| Western wheatgrass | Frankenia | |
| Squirreltail | Wolfberry | |
| New Mexico feathergrass | Mormon tea | |
| Needle & threadgrass | | |
| Alkali sacaton | | |
| Sacaton | | |
| Plains lovegrass | | |
| Green sprangletop | | |
| Squawbush | | |
| Apache plume | | |
| Winterfat | | |
| Chamise | | |

b. Dominant vegetation on this site when in top condition is made up of 70 percent perennial grasses and 30 percent semidesert shrubs. The main grasses are black grama, blue grama, sideoats grama, bush muhly, New Mexico feathergrass, and a sprinkling of dropseed species. A light overstory of such shrubs as squawbush, Apache plume, chamise, wolfberry, yucca and cholla is present over much of the site. Blue grama may be more prevalent on this site than on Stony Hills (SD-1) site. The site is capable of producing a variety of forage but is limited principally to warm season growers. At the upper elevational limits of this site scrub juniper may occur. Bush muhly and black grama are possibly the most important decreaser species on this site.

c. The site produces _____ to _____ pounds per acre.

d. Ground cover is approximately 30 percent.

6. SPECIFIC TYPE LOCATION:

Los Lunas Mountain; foothills of Manzano and Sandia Mountains.

RANGE CONDITION GUIDE

#103

Range Site Name Stony Mountains (SD-1)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|--------------------------|---------------------------------------|-----------|--------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Black grama | Three-awns | 10 | Snakeweed |
| 1 | Blue grama | Galleta | 10 | Rabbitbrush |
| 5 | Hairy grama | Buckwheat | T | Smokebush |
| 2 | Sideoats grama | Pappus grass | T | Fluffgrass |
| 4 | Arizona cottontop | Yucca | 5 | Burrograss |
| 3 | Little bluestem | Mesquite | T | Tumblegrass |
| 3 | Indian ricegrass | Sand dropseed | 5 | |
| 2 | Bush muhly | Creosote bush | T | |
| 4 | Silver beardgrass | Cholla | T | |
| 4 | Cane beardgrass | Prickly pear | T | |
| 5 | Plains bristlegrass | Agave | T | |
| 5 | Texas timothy | Brickelbrush | T | |
| 5 | Western wheatgrass | Ring muhly | T | |
| 5 | Bottlebrush squirreltail | Dyssodia spp. | T | |
| 4 | New Mexico feathergrass | Frankenia spp. | T | |
| 5 | Needle and thread | Wolfberry | T | |
| 4 | Alkali sacaton | False buffalograss | T | |
| 4 | Sacaton | Mormon tea | 5 | |
| 4 | Plains lovegrass | | | |
| 4 | Green sprangletop | | | |
| 5 | Skunkbush sumac | | | |
| 5 | Apache plume | | | |
| 5 | Winterfat | | | |
| 4 | Chamiza | | | |
| 4 | Vine-mesquite | | | |

Maximum total percent 25

| Percent by Weight of Potential Vegetation | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Minimum Percent Density | 75-100 | 51-75 | 50-26 | 0-25 |
| | 30 | 25 | 15 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-2, SD-3)

TG Section II-E

RANGE SITE - No. 104

1. RANGE SITE NAME: Stony Mountains (SD-2, SD-3)

2. CLIMATE:

- a. Precipitation averages from 8 to 15 inches and ranges from an all time low of 2.1 inches to a record high of 43 inches. The greater part occurs during the months of June, July, August, and September. There are extreme fluctuations from year to year, with periodic drouths. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages less than half an inch per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. These high winds in March, April, and May cause extensive erosion on unprotected soils. High temperatures, fairly constant winds, and low humidity cause the average annual evaporation to range up to 107 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during June, July, August, and September. The growing season of the native warm season plants begins after the last frost, March 29 to April 23, and continues as moisture is available until October 15 to November 15, which are the average dates ending the frost free period. Winters are generally mild, however, there is a recorded low of -30°F. The maximum summer temperature on record is 112°F. Average annual temperatures range from 58°F to 63°F.

3. TOPOGRAPHY AND ELEVATIONS:

This site is very rough, broken, stony, with steep to very steep slopes. Canyons with steep slopes, rock outcrops, and cliffs are common. The surface is frequently covered with boulders and cobbles. The steep slopes and rock strewn surface hinders livestock movement. Slopes vary from 20 percent and up. Elevations range from 3,800 to 6,500 feet.

4. SOILS:

- a. 60 to 95 percent of the surface is covered by stones. Surrounding soil material will vary from 5 to 20 inches deep with small pockets of soil material over 20 inches deep. Water intake rates are generally good and moisture holding capacity is low.

Range Site - No. 104

4. SOILS: (continued)

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Rough semidesert mountainous land, acid igneous
Steeply sloping rocky hills, acid igneous centers
and limestone base

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legend, or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Sideoats grama
Black grama
Bush muhly
Blue grama
Hairy grama
Plains bristlegrass
Arizona cottontop
Cane bluestem
Texas bluestem
Green sprangletop
Bull grass
Deer grass
Muhlenbergia mundula
Tanglehead
Metcalfé muhly
Plains bristlegrass
Woolspike Balsamscale
Vine-mesquite

Increasers

Tobosa
Threeawns
Curly mesquite
Slim tridens
Rough tridens
Hall panicum
Whiplash pappusgrass
Hairy tridens
Chamiza
Common winterfat
Agave
Sotol
Juniper
Wright Eriogonum
Wolfberry
Condalia
Wright lippia
American tarbush
Loco
Catclaw
Mescat acacia
Cactus
Broom baccharis
Rabbitbush

Invaders

Creosotebush
Mesquite
Burroweed
Spiny allthorn
Fluffgrass

RANGE SITE - No. 104

5. POTENTIAL VEGETATION: (continued)

- b. The decreasers make up 50 percent and the remainder may be increasers. There may be 20 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is 1,100 to 1,350 pounds per acre. *
- d. Herbage covers 20 to 25 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

Cook's Range and Florida Mountains in Luna County.
Caballo Mountains in Dona Ana and Sierra Counties.
North end of Peloncillo Mountain in Hidalgo County.
Brokoff Mountains in Otero County.
Dona Ana Mountains in Dona Ana County.

* Based on limited plot clippings and estimates.

RANGE CONDITION GUIDE

#104

Range Site Name Stony Mountains (SD-2, SD-3)

| Rating | Decreasers | Increasers | Max. % By Wt. | Invaders |
|--------|------------------------|---------------------------------------|------------------------|----------------|
| | (Count all percent) | (Count no more than percent shown) | | (Count None) |
| 1 | Sideoats grama | Juniper | 5 | Spiny allthorn |
| 1 | Black grama | Hall panicum | 5 | Creosotebush |
| 2 | Bush muhly | Sotol | 5 | Mesquite |
| 3 | Blue grama | Slim tridens | 5 | Fluffgrass |
| 3 | Hairy grama | Rough tridens | 5 | |
| 3 | Plains lovegrass | Wright Eriogonum | 5 | |
| 4 | Arizona cottontop | Threeawns | 10 | |
| 4 | Cane bluestem | Tobosa | 10 | |
| 4 | Texas bluestem | Common winterfat | 10 | |
| 4 | Green sprangletop | Chamiza | 10 | |
| 4 | Bull grass | Agave | 10 | |
| 4 | Deer grass | Curly mesquite | 10 | |
| 4 | Muhlenbergia Mundula | Rabbitbush | T | |
| 5 | Woolspike balsamscale | Hairy tridens | T | |
| 4 | Tanglehead | Wolfberry | T | |
| 4 | Metcalfes muhly | Gray thorn | T | |
| 5 | Plains bristlegrass | American tarbush | T | |
| 5 | Vine-mesquite | Whiplash Pappusgrass | T | |
| | | Wright lippia | T | |
| | | Loco | T | |
| | | Catclaw | T | |
| | | Mescat acacia | T | |
| | | Cactus | T | |
| | | Bacharris spp. | T | |

Maximum total percent 50

| Percent by Weight of Potential Vegetation | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Minimum Percent Density | 76-100 | 51-75 | 50-26 | 0-25 |
| | 20 | 15 | 10 | Any |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 1,100 | | | |
| Unfavorable Years | | | | |

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UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-4)

TG Section II-E

RANGE SITE - No. 105

1. RANGE SITE NAME: Stony Mountains (SD-4)

2. CLIMATE:

- a. Precipitation averages from 13 to 21 inches and ranges from an all time low of 9.8 inches to a record high of 29 inches. Approximately one-half of the precipitation occurs during the months of July, August, and September. There are extreme fluctuations from year to year, with periodic droughts. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages 1.5 inches per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. High temperatures, fairly constant winds, and low humidity causes the average annual evaporation to range up to 90 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during July, August, and September. The growing season of the native warm season plants begins after the last frost, April 29, and continues as sufficient moisture is available until October 27 which is the average date ending the frost free period. Winters are generally mild. Average annual temperature is 57°F.

3. TOPOGRAPHY AND ELEVATIONS:

The topography on this site is steep to very steep with frequent rock outcrops. Access to this site by livestock is frequently limited. Elevations range from 5,500 to 8,500 feet above sea level.

4. SOILS:

- a. The significant soils that characterize this site are stony loams and stony clay loams. Depth is variable but mostly shallow. Soil, plant, and moisture relationships are generally very good. Frequent rock outcrops and sheer bluffs are common. Soil erosion is generally no problem; however, if perennial cover is sparse and rains are torrential, erosion will occur.

4. SOILS: (continued)

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Rough broken stony land

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legend or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Sideoats grama
Little bluestem
Texas bluestem
Switchgrass
New Mexico feathergrass
Cane bluestem
Green sprangletop
Plains lovegrass
Pinon ricegrass
Crinkleawn
Tanglehead
Metcalfes muhly
Bush muhly
Deer grass
Bull grass
Muhlenbergia mundula
Woolspike balsamgrass
Plains bristlegrass
Bulb panic
True mountain mahogany

Increasers

Blue grama
Hairy grama
Slender grama
Wolf tail
Bottlebrush squirrel tail
Purple grama
Curly mesquite
Hall panicum
Threeawns
Tobosa
Sprucetop grama
Whiplash pappusgrass
Feather dalea
Apache plume
Shrub live oak
Silverleaf oak
Arizona white oak
Mexican pinon
Chihuahua pine
Apache pine
Alligator juniper
Arizona cypress
Banana yucca
Baccharis spp.
Wright lippia
Mesquite acacia
Manzanita

Invaders

Mesquite
Burroweed
Fluffgrass

RANGE SITE - No. 105

5. POTENTIAL VEGETATION: (continued)

Decreasers

Increasers

Invaders

Madrone
Rabbitbush
Agave
Schott yucca
Loco
Broom snakeweed

- b. The decreaseers make up 60 percent of the vegetation and the reaminder may be increasers. There may be 30 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is 1,200 to 1,500 pounds per acre. *
- d. Herbage covers from 20 to 30 percent of the ground.

6. SPECIFIC TYPE LOCATION:

Animas Mountains in the southern part of Hidalgo County.

* Based on limited plot clippings and estimates.

RANGE CONDITION GUIDE

#105

Range Site Name Stony Mountains (SD-4)

| Rating | Decreasers (Count all percent) | Increasers (Count no more than percent shown) | Max. | Invaders (Count None) |
|--------|-----------------------------------|-----------------------------------------------------|----------------|--------------------------|
| | | | % By Wt. | |
| 1 | Sideoats grama | Hall panicum | T | Mesquite |
| 1 | Texas bluestem | Whiplash Pappusgrass | T | Burroweed |
| 2 | Little bluestem | Apache pine | T | Fluffgrass |
| 2 | Cane bluestem | Arizona cypress | T | |
| 2 | Plains. lovegrass | Banana yucca | T | |
| 3 | Metcalfé muhly | Schott yucca | T | |
| 3 | Bush muhly | Baccharis spp. | T | |
| 3 | Bull grass | Wright lippia | T | |
| 4 | Green sprangletop | Mescat acacia | T | |
| 4 | Pinon ricegrass | Madrone | T | |
| 4 | Tanglehead | Rabbitbush | T | |
| 4 | Deer grass | Agave | T | |
| 5 | Switchgrass | Loco | T | |
| 5 | New Mexico feathergrass | Broom snakeweed | T | |
| 5 | Crinkleawn | Bottlebrush squirreltail | 5 | |
| 5 | Muhlenbergia mundula | Feather dalea | 5 | |
| 5 | Woolspike balsamscale | Shrub liveoak | 5 | |
| 5 | Plains bristlegrass | Silverleaf oak | 5 | |
| 5 | Bulb panicum | Arizona white oak | 5 | |
| | | Mexican pinon | 5 | |
| | | Chihuahua pine | 5 | |
| | | Manzanita | 5 | |
| | | Threeawns | 10 | |
| | | Tobosa | 10 | |
| | | True mountain mahogany | 10 | |
| | | Alligator juniper | 10 | |
| | | Sprucetop grama | 30 | |
| | | Wolftail | 20 | |
| | | Curly mesquite | 20 | |
| | | Blue grama | 40 | |
| | | Hairy grama | 40 | |
| | | Slender grama | 40 | |
| | | Purple grama | 10 | |
| | | Maximum total percent | 40 | |

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 20 | 15 | 10 | Any |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 1,200 | | | |
| Unfavorable Years | | | | |

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UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Central Plains and Valleys (CP-4)

TG Section II-E

RANGE SITE - No. 106

1. RANGE SITE NAME: Limestone Hills (CP-4)

2. CLIMATE:

- a. Annual average precipitation for this area ranges from approximately 12 to 16 inches. About three-fourths of the annual average precipitation occurs between April 1 and October 1 with July, August, and September having the highest monthly averages. Most of the rainfall occurs as thundershowers of high intensity and short duration, with heavy runoff from unprotected soils. There are extreme fluctuations in both the amount and time of rainfall from year to year. Periodic droughts lasting for 3 to 4 years have occurred. Annual rainfall in the area has ranged from as high as 30 or more inches to as low as 4 inches.
- b. Wind velocities are high in this area. The spring months are characterized by frequent wind storms that cause excessive erosion on soils that are not adequately protected by vegetative cover. Humidity is low and evaporation is high.
- c. The frost free season ranges from approximately 175 to over 200 days. Summers are characterized by warm days and cool nights with daytime temperatures occasionally reaching 100°F from late May to early September. Winters are characterized by warm sunny days and cold nights. Occasional storms may result in below freezing weather for a period of 2 or 3 days. Temperatures of 0°F or lower have occurred in about 1/3 of the years of record, with -22°F the lowest temperature that has been recorded in the area.

3. TOPOGRAPHY AND ELEVATIONS:

This site consists of steep ridges and hills occurring throughout the western portion of the resource area. They occur at elevations ranging from 3,500 feet upward to 6,000 feet. Slopes range from approximately 10 percent upward.

4. SOILS:

- a. The soil of this site is a shallow stoney loam underlain by hard caliche and limestone. Characteristically there is a large amount of loose rock on the surface with areas of bare ledges and bed rock exposed to the surface.

RANGE SITE - No. 106

4. SOILS: (continued)

b. Significant soils of this site are:

Ector shallow stoney loam

c. A detailed description of this soil can be found in the soil handbook for the Chaves and Eddy County Standard Soil Surveys.

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Blue grama
Black grama
Sideoats grama
Plains lovegrass
Metcalf muhly
Green sprangletop
Little bluestem
Big bluestem
Bush muhly
Arizona cottontop

Increasers

Plains bristle grass
Hall's panic
Bull grass
Wolftail
Cane bluestem
Silver bluestem
Rough tridens
Slim tridens
Hairy tridens
Three-awns
Agave
Yucca
Sotol
Ocatilla
Sagahuista
Skunk sumac
Algerita
Catclaw

Invaders

Burro grass
Ring muhly
Tobosa
Mat muhly
Creeping muhly
Mesquite
Snake weed
Annuals

b. This site is characterized by the presence of many woody species few of which reach sufficient size to be arborescent. Along the extreme western edge of the site location a few juniper, oak, and hackberry trees are found on north and east facing slopes, together with mountain mahogany and other species more characteristic of the higher elevations.

c. Total herbage yields: Air dry material per acre 1,000 to 1,400 pounds.

d. Ground cover in climax condition 20 percent.

TG Section II-E

RANGE SITE - No. 106

6. SPECIFIC TYPE LOCATION:

Along Rio Felix from the Treat Ranch headquarters to the west side of the Flying H Ranch.

RANGE CONDITION GUIDE

#106

Range Site Name Limestone Hills (CP-4)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|---------------------------------------|-----------|-----------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Blue grama | Hall's panic | T | Burro grass |
| 3 | Black grama | Bull grass | 5 | Ring muhly |
| 4 | Sideoats grama | Wolftail | 5 | Tobosa |
| 5 | Plains lovegrass | Cane bluestem | 5 | Mat muhly |
| 1 | Metcalfe's muhly | Silver bluestem | 5 | Creeping muhly |
| 5 | Green sprangletop | Rough tridens | T | Mesquite |
| 5 | Little bluestem | Slim tridens | T | Broom snakeweed |
| 5 | Big bluestem | Hairy tridens | T | Annuals |
| 5 | Bush muhly | Three-awns | T | |
| 5 | Arizona cottontop | Agave | 5 | |
| | | Yucca | 5 | |
| | | Sotol | T | |
| | | Ocatilla | T | |
| | | Sacahuista | 10 | |
| | | Skunkbush sumac | 10 | |
| | | Algerita | 10 | |
| | | Catclaw | 10 | |

Maximum total percent 50

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 20 | 20 | 15 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 1,400 | | | |
| Unfavorable Years | 500 | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico

Land Resource Area--Southern Desert Valleys and Plains (SD-2, SD-3)

TG Section II-E

RANGE SITE - No. 107

1. RANGE SITE NAME: Limestone Hills (SD-2, SD-3)

2. CLIMATE:

- a. Precipitation averages from 8 to 15 inches and ranges from an all time low of 2.1 inches to a record high of 43 inches. The greater part occurs during the months of June, July, August, and September. There are extreme fluctuations from year to year, with periodic droughts. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages less than half an inch per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. These high winds in March, April, and May cause extensive erosion on unprotected soils. High temperatures, fairly constant winds, and low humidity cause the average annual evaporation to range up to 107 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during June, July, August, and September. The growing season of the native warm season plants begins after the last frost, March 29 to April 23, and continues as moisture is available until October 15 to November 15, which are the average dates ending the frost free period. Winters are generally mild, however, there is a recorded low of -30°F . The maximum summer temperature on record is 112°F . Average annual temperatures range from 58°F to 63°F .

3. TOPOGRAPHY AND ELEVATIONS:

The topography on this site is steep to very steep with slopes of 10 to 45 percent. The average slope is 25 percent. Elevations vary from 3,000 to 5,500 feet above sea level.

4. SOILS:

- a. The significant soils that characterize this site are stony and gravelly loams. The stones and gravels are usually angular fragments of limestone. Soil depth is shallow, usually 10 inches or less. Moisture holding capacity is generally low, however, the soil and plant moisture relationship is good. If unprotected by vegetation the soil is subject to erosion by water.

RANGE SITE - No. 107

4. SOILS: (continued)

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Ector stony loam
Tortugas stony loam

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legend, or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Sideoats grama
Blue grama
Hairy grama
Black grama
Plains lovegrass
New Mexico feathergrass
Metcalfé muhly
Wolftail
Green sprangletop
Bush muhly
Arizona cottontop
Common winterfat
Feather dalea
Wright Eriogonum

Increasers

Slender tridens
Rough tridens
Hairy tridens
Fluffgrass
Threeawns
Hall panicum
Burrograss
Bottlebrush squirreltail
Sand dropseed
Threadleaf groundsel
Rocky Mountain zinnia
Wallflower
Loco
Globemallow
Mescat acacia
Catclaw
Sotol
Sacahuista
Banana yucca
Yucca
Indian paintbrush
Agave
Skunkbush sumac
Algerita
Cactus
Yerba-de-pasmo

Invaders

Mesquite
American tarbush

RANGE SITE - No. 107

5. POTENTIAL VEGETATION: (continued)

Decreasers

Increasers

Invaders

Broom snakeweed
Longleaf ephedra
Shrub liveoak
Ocotillo
Condalia
Wolfberry
Wright lippia
Creosotebush

- b. The decreaseers make up 60 percent of the vegetation and the remainder is made up of increasers. Up to 15 percent of the composition may be made up of woody species.
- c. Annual herbage yield of this site based on plot clipping is 850 to 1,050 pounds per acre. *
- d. Herbage covers 15 to 20 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

* Based on limited plot clippings and estimates.

RANGE CONDITION GUIDE

#107

Range Site Name Limestone Hills (SD-2, SD-3)

| Rating | Decreasers | Increasers | Max. % By Wt. | Invaders |
|--------|-------------------------|---------------------------------------|------------------------|--------------|
| | (Count all percent) | (Count no more than percent shown) | | (Count None) |
| 1 | Sideoats grama | Slim tridens | 5 | Mesquite |
| 1 | Black grama | Rough tridens | 5 | Tarbrush |
| 1 | Metcalfe muhly | Bottlebrush squirreltail | 5 | |
| 2 | Bush muhly | Sand dropseed | 5 | |
| 3 | Hairy grama | Sotol | 5 | |
| 3 | Plains lovegrass | Sacahuista | 5 | |
| 4 | Blue grama | Agave | 5 | |
| 4 | Arizona cottontop | Broom snakeweed | 5 | |
| 4 | Common winterfat | Shrub live oak | 5 | |
| 4 | Feather dalea | Wright lippia | 5 | |
| 4 | Wright Eriogonum | Creosotebush | 5 | |
| 5 | Green sprangletop | Threeawns | 15 | |
| 5 | New Mexico feathergrass | Hairy tridens | T | |
| 5 | Wolftail | Fluffgrass | T | |
| | | Hall's panicum | T | |
| | | Burrograss | T | |
| | | Threadleaf groundsel | T | |
| | | Rocky Mountain zinnia | T | |
| | | Wallflower | T | |
| | | Loco | T | |
| | | Mallow | T | |
| | | Mesquit acacia | T | |
| | | Catclaw | T | |
| | | Banana yucca | T | |
| | | Soaptree yucca | T | |
| | | Indian paintbrush | T | |
| | | Skunkbush | T | |
| | | Algerita | T | |
| | | Cactus | T | |
| | | Yerba-de-pasmo | T | |
| | | Longleaf Ephedra | T | |
| | | Ocotillo | T | |
| | | Condalia | T | |
| | | Wolfberry | T | |
| | | Maximum total percent | 40 | |

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 15 | 10 | 5 | Any |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 850 | | | |
| Unfavorable Years | | | | |

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UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Northern Desert Valleys and Mesas (ND)

TG Section II E

RANGE SITE - No. 108

1. RANGE SITE NAME: Shale Breaks (ND)

2. CLIMATE:

- a. The average annual rainfall in the Northern Desert Land Resource Area is 10 inches. Some recordings are as low as 6.76 inches annually in the San Juan Valley. Approximately one-third of this amount occurs in the form of snow from December through March. Intense summer thunder showers are common during July, August, and September when average amounts for this season equal 3 to 4 inches. The frost-free period ordinarily extends from late spring (May-June) to early fall (Oct.-Nov.).
- b. Spring winds contribute to zeric conditions over most of the district.
- c. The principal growing season on this site occurs during the summer months when precipitation and temperatures are optimum for grama. At the elevations above 6,500 feet, cool season growers make considerable production during March and April and, after a dormant summer season, will make some growth in the fall (Oct.-Nov.). Frost-free periods range from about 140 days in the higher elevations to 163 days in the lower elevations. These periods extend from mid-May to mid-October.

3. TOPOGRAPHY AND ELEVATION:

- a. The dominant slope is 25 percent and over. Steeper ridges are common with sparse vegetative cover even in good range condition. Geological erosion is prevalent on the site. Steep slopes limit movement of grazing animals. The breaks are often capped with coarse sandstone in various stages of decomposition. Main water courses parallel the ridges with branches throughout the site. A very complex series of exposures and slopes occur within the site.
- b. Elevations range from about 5,000 to about 7,500 feet.

4. SOILS:

- a. The soil in this site is very shallow over shale. Sandstone caps often occur at the top of the escarpment. The capped material may be strewn down the slopes giving a thin cobble stone appearance. Runoff is high. Erosion is usually severe. Moisture penetration is slow and much of it evaporates. Yields are low. The surface texture is moderately fine to fine.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Shale rock land

5. POTENTIAL VEGETATION

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasesers</u> | <u>Invaders</u> |
|-------------------|---------------------|-----------------|
| Galleta | Sandhill muhly | Pingue |
| Blue grama | Poverty threeawn | Loco |
| Alkali sacaton | Eriogonum | |
| Indian ricegrass | Wooly groundsel | |
| Chamiza | Big sagebrush | |
| Shadscale | Rubber rabbitbrush | |
| | Juniper | |
| | Longleaf Ephedra | |

- b. The decreaseers make up 70 percent of the vegetation and the remainder is increaseers. There may be a trace of woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 15 percent of the ground.

6. SPECIFIC TYPE LOCATION:

Range Site Name Shale Breaks (ND)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|------------------|------------------------------|----------------|--------------|
| | (Count all %) | (Count no more than % shown) | % By Wt. | (Count none) |
| 1 | Galleta | Sandhill muhly | 10 | Pingue |
| 4 | Blue grama | Poverty threeawn | T | Loco |
| 4 | Indian ricegrass | Eriogonum | T | |
| 5 | Chamiza | Wooly groundsel | T | |
| 5 | Shadscale | Big sagebrush | 5 | |
| 3 | Alkali sacaton | Juniper | T | |
| | | Longleaf Ephedra | T | |
| | | Rubber rabbitbrush | 10 | |

Maximum total percent 30

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 15 | 10 | 5 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

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R. A. A.

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Western Plateaus and Mesas (WP-1, WP-2)

TG Section II E

RANGE SITE - No. 109

1. RANGE SITE NAME: Shale Breaks (WP-1, WP-2)

2. CLIMATE:

- a. Precipitation varies from 10 to 15 inches per year. The major portion falls as rain in the months of July, August, and September. Rainfall comes generally as high intensity thunderstorms and runoff will be high if vegetative cover is poor. Some spring moisture is received, but amounts of winter moisture are quite light. June is ordinarily the driest month for the growing season.
- b. Windy spring weather is experienced from February to June.
- c. The growing season averages about 140 days. Little forage growth is expected until July when the summer rains usually start. Snowfall may be moderately heavy some years in the upper elevations of the site. Early or late winter moisture in the form of light rain accounts for a very minor part of the moisture and temperatures are too cold for any appreciable amount of vegetative growth.

3. TOPOGRAPHY AND ELEVATION:

- a. Topography is rough and includes slopes of 15 percent to 40 percent. The site includes rough topography with intermittent washes. The site is quite often adjacent to higher mountain slopes. Exposures are various in this site and are not mapped out as subdivisions of the site. Topography may also include steep waste areas as a site intermixture. The site may occur completely separate from a range of mountains. Most of the site area is accessible for grazing animals, but considerable variation in slope and exposure is encountered.
- b. This range site occurs from 5,500 to 7,500 feet elevation.

4. SOILS:

- a. These shale soils on Shale Breaks Site do not have a uniform depth. Unconsolidated shale may be exposed adjacent to deep pockets of soil. Surface texture is heavy to very heavy with a slow intake of water. In high rainfall periods over a short period of time, runoff is excessive resulting in erosion in V type gullies and steep break slopes when the vegetation cover is sparse. The surface tends to crust and seal over reducing the moisture intake rate. High salt content is often present with the salt-tolerant plants as indicators of salinity content.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Shale rockland

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|--------------------------------|--------------------|-----------------|
| Alkali sacaton | Rubber rabbitbrush | Pingue |
| Galleta | Sandhill muhly | |
| Chamiza | Greasewood | |
| Indian ricegrass | Poverty threeawn | |
| Blue grama | Eriogonum | |
| Bluestem (western) wheat-grass | Black sagebrush | |
| | Pinon | |
| | Juniper | |

- b. The decreaseers make up 60 percent of the vegetation and the remainder is increasers. There may be 20 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 15 percent of the ground.

6. SPECIFIC TYPE LOCATION:

Range Site Name Shale Breaks (WP-1, WP-2)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|----------------------------------|------------------------------|----------------|--------------|
| | (Count all %) | (Count no more than % shown) | % By Wt. | (Count none) |
| 3 | Alkali sacaton | Rubber rabbitbrush | 10 | Pingue |
| 2 | Galleta | Sandhill muhly | 5 | |
| 4 | Chamiza | Greasewood | 5 | |
| 4 | Indian ricegrass | Poverty threeawn | 5 | |
| 3 | Blue grama | Eriogonum | 5 | |
| 5 | Bluestem (Western) wheatgrass | Black sagebrush | 10 | |
| | | Pinon | 10 | |
| | | Juniper | 10 | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 15 | 10 | 5 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--High Plains (HP-1)
Central Plains and Valleys (CP-1)

TG Section II-E

RANGE SITE - No. 110

1. RANGE SITE NAME: Shale Hills (HP-1, CP-1)

2. CLIMATE:

- a. Annual precipitation averages from 15 to 18 inches. Approximately three-fourths of the annual average occurs during the period April to October inclusive. July and August most commonly receive the highest monthly totals. There are extreme fluctuations from year to year with recurrent droughts that have lasted as long as 4 years. Annual rainfall in the area has fluctuated from a high of 37.65 inches to a low of 5.54 inches in a 10 year period. Summer rainfall is characterized by torrential thunder-showers, producing high runoff from unprotected soils. Winter precipitation, which averages about 1/2 inch per month, usually occurs in the form of snow.
- b. Wind velocities for the area are high, averaging about 4.5 miles per hour on an annual basis. Spring windstorms, with velocities in excess of 45 miles per hour, occur frequently, causing severe wind erosion on soils inadequately protected by vegetation. Humidity is low and evaporation high, averaging 60 inches or more during the period April through October.
- c. The frost free season ranges from about 135 days at the higher elevations to about 165 days at lower elevations. The principal growing season for native plants occurs from May 15 to September 15 if sufficient moisture is available. Sub zero temperatures will usually occur every year with minimums of -20°F not uncommon. Summers are characterized by warm days and cool nights, with maximum temperatures seldom reaching 100°F. The percentage of sunshine is high, averaging about 80 percent of the possible amount.

3. TOPOGRAPHY AND ELEVATIONS:

This site consists of Low Hills that are made up of shale materials. The sides are usually steep with raw exposed shale. The tops are gently sloping and have some developed soil. This site occurs at elevations ranging from 5,500 to 7,500 feet. It is most common in Colfax County adjacent to but at lower elevation than the Foothills of the Cimarron Mountains and the Raton Mesa.

RANGE SITE - No. 110

4. SOILS:

a. The soils of this site are derived from shale or materials in which the shale influence is dominant. These soils take water slowly, have a high water-holding capacity, and are subject to severe water erosion when unprotected by a good cover of vegetation.

b. Significant soils of this site are:

Unnamed soils

c. Detailed descriptions of these soil mapping units are contained in the legend for the Standard Soil Survey in Colfax County.

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Sideoats grama
Little bluestem
Western wheatgrass
Vine mesquite
New Mexico feathergrass
Green needle grass
Chamise
Winter fat

Increasers

Blue grama
Galleta
Sleepy grass
Three-awns
Mountain mahogany
Buckwheats
Apache plume
Oak

Invaders

Ring muhly
Sand dropseed
Buffalo grass
Hairy tridens
Gum weed
Snake weed
Annuals
Senecio

b. Half of the vegetation is made up of decreasing species. Several woody shrubs are a part of the climax vegetation. 10% woody vegetation may be present in excellent range condition.

c. Yields -

d. Ground cover - 25 percent.

6. SPECIFIC TYPE LOCATION:

Along highway between Cimarron and Philmont Scout Ranch. Approximately 1/2 mile north of headquarters area on west side of road.

Range Site Name Shale Hills (CP-1)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|-------------------------|------------------------------------|----------------|--------------|
| | (Count all percent) | (Count no more than percent shown) | % By Wt. | (Count None) |
| 3 | Sideoats grama | Blue grama | 20 | |
| 3 | Little bluestem | Galleta grass | 10 | |
| 4 | Western wheatgrass | Sleepy grass | 1 | |
| 5 | Vine mesquite | Three-awns | 5 | |
| 5 | New Mexico feathergrass | Mountain mahogany | 5 | |
| 5 | Green needlegrass | Buckwheats | 5 | |
| 5 | Chamiza | Apache plume | 5 | |
| 5 | Common winterfat | Oak | 5 | |

Maximum total percent 50

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Good |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 25 | 25 | 20 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Northern Desert Valleys and Mesas (ND)

TG Section II E

RANGE SITE - No. 111

1. RANGE SITE NAME: Shale Hills (ND)

2. CLIMATE:

- a. The average annual rainfall in the Northern Desert Land Resource Area is 10 inches. Some recordings are as low as 6.76 inches annually in the San Juan Valley. Approximately one-third of these amounts falls in the form of winter snow from December through March. Intense summer thunder showers are common throughout the district during July, August, and September when average amounts for this season equal 3 to 4 inches. The frost-free period of the year is ordinarily late spring (May-June) and fall (Oct.-Nov.).
- b. Spring winds contribute to zeric conditions over most of the district.
- c. The principal growing season on this site is during the summer months when precipitation amounts and temperatures are optimum for grama. At the elevations above 6,500 feet, cool season growers make a considerable production during March and April and, after a dormant summer season, will make some growth in the fall (Oct.-Nov.). Frost-free periods range from about 140 days in the higher portion of the district to 163 days in the lower portion. These periods extend from May 8 and May 22 to October 9 and October 18.

3. TOPOGRAPHY AND ELEVATION:

- a. Dominant slope is 40 percent or less. Moderately steep hills and ridges are common to the site. Main water courses extend throughout the hills and ridges. Sandstone often caps the shale hills. A complex series ranges throughout the site with all exposures existing. All the hills are mapped as one unit.
- b. Elevation ranges from 5,000 feet to 7,500 feet where the hills will give away to the mountain type vegetation.

4. SOILS:

- a. The soils in this site are thin, fine to moderately fine-textured over shale, often with sandstone or other material forming a cap. The capped material may be strewn down the slopes giving a thin cobble stone appearance. The water storage capacity is low. Potential moisture is greatly reduced by excessive runoff and slow penetration rates.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Persayo silty clay loam
Shale rockland

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|------------------------------------|--------------------|-----------------|
| Galleta | Sandhill muhly | Pingue |
| Chamiza | Mesa dropseed | Loco |
| Bluestem (western) wheat- grass | Cheatgrass | |
| Alkali sacaton | Rubber rabbitbrush | |
| Indian ricegrass | Eriogonum | |
| Blue grama | Greasewood | |
| | Shadscale | |
| | Pinon | |
| | Juniper | |
| | Longleaf Ephedra | |

- b. The decreaseers make up 60 percent of the vegetation and the remainder is increasers. There may be 30 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 20 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#111

Range Site Name Shale Hills (ND)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|--------------------|------------------------------|----------------|--------------|
| | (Count all %) | (Count no more than % shown) | % By Wt. | (Count none) |
| 1 | Galleta | Sandhill muhly | 5 | Pingue |
| 5 | Chamiza | Mesa dropseed | T | Loco |
| 2 | Bluestem (western) | Cheatgrass | 5 | |
| | wheatgrass | Rubber rabbitbrush | 5 | |
| 4 | Indian ricegrass | Eriogonum | T | |
| 3 | Blue grama | Greasewood | T | |
| 3 | Alkali sacaton | Shadscale | 5 | |
| | | Pinon | 15 | |
| | | Juniper | 15 | |
| | | Longleaf Ephedra | T | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 20 | 15 | 10 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Western Plateaus and Mesas (WP-1, WP-2)
Central Plains and Valleys (CP-3)

TG Section II-E

RANGE SITE - No. 112

1. RANGE SITE NAME: Shale Hills (WP-1, WP-2, CP-3)

2. CLIMATE:

- a. The climate for this site is quite varied, ranging from an area in which winter moisture makes up over 50 percent of the total precipitation to areas where summer rainfall supplies the greater percentage of annual amounts received. Particularly in sub-area WP-1, winter moisture is an important factor in native plant development. Moisture received during the hotter months of July, August, and September determines largely the annual forage production. Amounts of 2 to 3 inches per month are not uncommon during the summer when thunderstorm activity is at its peak. June is ordinarily the critical month from the standpoint of soil moisture. Extreme variations in amounts of precipitation received during July, August, and September are reflected in wide fluctuations in range forage production throughout the area where this site occurs. Winter moisture in the form of snow constitutes the main source of moisture for the cool season growers occurring on this site.
- b. Hot, drying winds are common during the spring and summer months in the central portion of the state where this site occurs but are not an important facet of climate in the WP-1 and WP-2 sub-areas.
- c. Summer daytime temperatures are high, reaching to the high 90's and humidity is low, particularly during the morning hours. Winter temperatures may drop to -30°F and -40°F for this site at its northernmost extension. Sub-freezing temperatures are normal for the period November through March.

3. TOPOGRAPHY AND ELEVATIONS:

This site is typified by hilly terrain with slopes varying from 10 percent to 25 percent. Slopes less than 10 percent with shale soils are identified as Clayey Upland. Where slopes exceed 25 percent the site is classified as Shale Breaks. Elevations for this site range from 5,500 feet in the south central portion of the area covered by this site up to 7,000 feet in the Chama area.

RANGE SITE - No. 112

4. SOILS:

a. Soils of this site are derived from one or more of the various shale formations in this part of the State. These formations are for the most part classed as Mancos, Morrison, and Wasatch, and may be inter-mixed with various sandstone formations. Surface textures are fine or heavy textured, take water slowly but are capable of taking up and storing large quantities of moisture. They are good grass soils and highly productive during years of above normal precipitation. During drouth years light rains are lost through runoff and evaporation, and thus are ineffective. Throughout the site soils are deep to moderately deep and may be underlain by shale or sandstone layers in the substratum.

b. Soils included are:

Chipeta silt loam
Cuates clay loam

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

New Mexico feathergrass
Needle & thread grass
Indian ricegrass
Western wheatgrass
Blue grama
Bigelow sage
Alkali sacaton
Black grama
Hairy grama
Junegrass
Little bluestem
Sideoats grama
Muttongrass
Squirreltail
Winterfat
Dropseeds
Chamiza
Shrubby buckwheat
Yarrow
Slender wheatgrass
Black sagebrush

Increasers

Pingue
Galleta
Three-awn
Ring muhly
Spiny muhly
Thurber's muhly
Wiregrass
Sleepy grass
Black sagebrush
Buckwheat
Big sagebrush

Invaders

Rabbitbrush
Greasewood
Snakeweed

RANGE SITE - No. 112

5. POTENTIAL VEGETATION: (continued)

- b. Vegetation consists of a mixture of trees, shrubs, forbs, and grass species. The forbs play a minor part in the vegetational aspect of the site. Where sandstone layers are intermixed in the site, scrubby pinon-juniper stands are found as an overstory to shrub and grass species. On the lower, more gentle slopes, except for natural invasion stands of trees, shrubs, and grass are dominant. Climax dominants include the following species: Galleta, blue grama, alkali sacaton, western wheatgrass, chamise, big sagebrush, Indian ricegrass, littleseed ricegrass, needle and thread grass, and various species of dropseeds.
- c. Big sagebrush does not occupy more than 15 percent of the vegetation composition in the WP-1 sub-resource area for this site. Chamise, though a decreaser, will ordinarily not be found in large amounts. Dropseeds are more prevalent in areas where the influence of sandstone is more apparent. Galleta, western wheatgrass, blue grama, alkali sacaton, and Indian ricegrass make up the greater percent of vegetative composition in the top condition classes. Shrubby buckwheat is present in top condition also. Three-awn, ring grass, rabbitbrush, and snakeweed are present only in trace amounts and are regarded as increasers on this site.
- d. Total vegetative cover is approximately 25 percent.
- e. Forage yields vary from _____ pounds to _____ pounds per acre.

6. SPECIFIC TYPE LOCATION:

Hills about 3 miles south of Cuba and east of Highway 44.

Hills along east boundary of Jicarilla-Apache Indian Reservation near Highway 44.

RANGE CONDITION GUIDE

#112

Range Site Name Shale Hills (WP-1, WP-2, CP-3)

| Rating | Decreasers | Increasers | Max. % By Wt. | Invaders |
|--------|--------------------------|------------------------------------|------------------------|--------------|
| | (Count all percent) | (Count no more than percent shown) | | (Count None) |
| 5 | New Mexico feathergrass | Big sagebrush | 15 | |
| 4 | Needle and thread | Galleta | 25 | Rabbitbrush |
| 2 | Indian ricegrass | Three-awn | 5 | Greasewood |
| 2 | Western wheatgrass | Ring muhly | T | Snakeweed |
| 3 | Blue grama | Sandhill muhly | T | |
| 3 | Bigelow sagebrush | Thurber's muhly | 10 | |
| 1 | Alkali sacaton | Wiregrass | 5 | |
| 4 | Black grama | Sleepy grass | 5 | |
| 5 | Hairy grama | Black sagebrush | 15 | |
| 5 | Prairie junegrass | Buckwheat | 5 | |
| 5 | Little bluestem | | | |
| 5 | Sideoats grama | | | |
| 5 | Mutton grass | | | |
| 5 | Bottlebrush squirreltail | | | |
| 2 | Winterfat | | | |
| 3 | Dropseeds | | | |
| 2 | Chamise | | | |
| 2 | Shrubby buckwheat | | | |
| 5 | Yarrow | | | |
| 5 | Slender wheatgrass | | | |
| 4 | Black sage | | | |

Maximum total percent 60

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 25 | 15 | 10 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Central Plains and Valleys (CP-3)

TG Section II-E

RANGE SITE - No. 113

1. RANGE SITE NAME: Gyp Hills (CP-3)

2. CLIMATE:

- a. Average annual precipitation is approximately 14 inches for this range site. Fluctuations in annual and seasonal amounts received may be quite extreme, ranging from 70 percent below the average for drought years up to 150 percent of average for years of maximum production. Critical time for receiving moisture is during the main growing season which extends from July through September. Winter moisture and spring growth of alkali sacaton are influential in increasing production on this site during some years. Summer storms are usually intense and of short duration. These storms, although of importance from the standpoint of grass production, are also of the type which causes severe erosion with attendant pedestaling of plants on this site. Winter moisture is received as both rain and snowfall with snow accumulations ordinarily light to moderate. Occasionally heavy snows in January or early spring with a subsequent period of extremely low temperatures inflict considerable hardship on livestock. This site, however, offers some physiographic protection during such inclement periods.
- b. Typically, the Estacado or Staked Plains climate is characterized by frequent, rather strong, spring windstorms. Where this site has been deteriorated, these storms can result in serious erosion to this site and accumulations of gyp soil and adjoining sites.
- c. The frost-free period is from about May 15 to September 1, but growth of some species may commence and end prior to and for some period after these dates. Summer temperatures may range up to 108°F while winter minimums of -33°F have been recorded. Both warm season and cool season plants may be present on this site. Evaporation rate is high during the spring, summer, and fall.

3. TOPOGRAPHY AND ELEVATIONS:

This site is characterized by hilly, breaks, or broken topography. When dissected, the slopes are steeper than that identified as Gyp Upland. Slopes dominantly exceed 10 percent and vary from that gradient up to precipitous breaks as high as 75 percent. Where steeper than 75 percent, the gyp sites is Class 8 or waste. Elevational range for this site is from 6,000 to 7,000 feet.

RANGE SITE - No. 113

4. SOILS:

- a. Soils are shallow to very shallow with some inclusions of pockets of deep soils. Surface soil texture is loamy but heavier textured phases are present tending toward silt loams. Some small amount of gravelly to stony material may be present on the surface, usually an erosion pavement on areas in lower condition. Soils are present over gypsum layers, some of which may become extruded in places on the site, and constituting waste areas with but little potential for vegetative cover. The soils of this site take water slowly and water-holding capacity is low. Runoff is rapid and erosion activity is naturally high for this site.
- b. Soils included in this site include the following:

Cottonwood loam

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Black grama
Blue grama
Hairy grama
Sideoats grama
Alkali sacaton
Cane beardgrass
Plains bristlegrass
Chamiza
Mormon tea
Winterfat
Hairy tridens
Bush muhly
Needle & threadgrass
Vine mesquite
Dropseeds

Increasers

Gyp grama
Gyp dropseed
Coldenia
Burrograss
Fluffgrass
Three-awn
Tobosa
Galleta
Ring muhly
Wolfberry
Sedge
Dyssodia

Invaders

Rabbitbrush
Snakeweed
Mesquite
Creosotebush
Rayless goldenrod
Yucca

- b. Potential dominants for this site include the following grasses: Alkali sacaton, gyp grama, tobosa, blue grama, black grama, sideoats grama, gyp dropseed, vine mesquite, plains bristlegrass, dropseeds, cane beardgrass, hairy tridens, and hairy grama. Alkali sacaton, gyp grama, tobosa, and gyp dropseed exceed approximately 50 percent of the vegetative composition. Percent composition of ring grass and three-awn may amount to 15 percent of the total. Coldenia is the most prevalent

RANGE SITE - No. 113

5. POTENTIAL VEGETATION: (continued)

forb present and may constitute 10 percent composition. Traces of such invaders and increasers as mesquite, creosotebush, wolfberry, yucca, sedges, rabbitbrush, and snakeweed are present. Burro grass may become important enough to aggregate 20 percent of the plant composition. Chamise and Mormon tea are decreaser shrubs found in limited amounts on this site.

- c. Forage yield for this site is low due primarily to potential density of ground cover. Average yield is approximately _____ pounds per acre.
- d. Ground cover is low even in top condition and averages 15 percent to 20 percent.

6. SPECIFIC TYPE LOCATION:

Broken hills west of Derramadero and east of State Highway No. 3.
Also on Perez Ranch north of Encino.

RANGE CONDITION GUIDE

#113

Range Site Name Gyp Hills (CP-3)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|---------------------------------------|-----------|-------------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 3 | Black grama | Gyp grama | 20 | Rabbitbrush |
| 3 | Blue grama | Gyp dropseed | 20 | Snakeweed |
| 5 | Hairy grama | Coldenia | 10 | Mesquite |
| 4 | Sideoats grama | Burrograss | 15 | Creosote bush |
| 1 | Alkali sacaton | Fluffgrass | T | Rayless goldenrod |
| 4 | Cane beardgrass | Three-awn | 10 | Yucca |
| 5 | Plains bristlegrass | Tobosa) | 10 | |
| 2 | Chamiza | Galleta) | | |
| 4 | Mormon tea | Ring muhly | 5 | |
| 4 | Winterfat | Wolfberry | T | |
| 5 | Hairy tridens | Sedge | T | |
| 5 | Bush muhly | Dyssodia | 5 | |
| 5 | Needle and thread | | | |
| 3 | Mesa dropseed | | | |
| 3 | Sand dropseed | | | |
| 3 | Vine-mesquite | | | |

Maximum total percent 65

| Percent by Weight of Potential Vegetation | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Minimum Percent Density | 76-100 | 51-75 | 50-26 | 0-25 |
| | 20 | 15 | 10 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Western Plateaus and Mesas (WP-2)

TG Section II E

RANGE SITE - No. 114

1. RANGE SITE NAME: Gyp Hills (WP-2)

2. CLIMATE:

- a. The precipitation range of this site is extremely variable. Average annual precipitation amounts vary from 4 inches up to 20 inches with the average annual amount equalling close to 12 inches. The growing season extends for approximately 150 days from May 10 to October 7. Grass makes its growth period during the hot summer months of July, August, and September when temperatures reach the 90's and thunderstorm activity may be at its peak. Good growing conditions usually extend through the month of September.
- b. Late winter and early spring winds produce a pronounced drying effect on winter soil moisture. This site may be subject to damage by these wind storms through the process of removal of the soil when the site is in the lower condition classes.
- c. The climate for this site is quite often severe during the winter months. Snowfall accounts for less than one-half of the moisture. Snow may remain on the ground for short periods of time. Dry winters are common during which practically no snow falls and but little rain. These dry winters are reflected in poor forage growth on the cool season growers.

3. TOPOGRAPHY AND ELEVATION:

- a. The site is very limited in the resource areas. Topography varies from 10 percent undulating slopes and up to slopes of 40 percent. The site may be dissected by washes or bottom land sites. These sites are recognized and delineated out where they are of sufficient size to effect management practices. Runoff is quite rapid in the poor range condition classes. All exposures are included in the Gyp Hills Site which has a network of well defined water courses extending throughout the hills. Stony outcrops occur within the site.
- b. Elevation range of this site is about 6,000 feet.

4. SOILS:

- a. Very shallow and shallow medium-textured soils underlain by gypsum are typical of the Gyp Hills. Erosion is often severe, especially on slopes over 10 percent. Runoff is moderate. These soils are droughty. They are strongly calcareous.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Cottonwood loam

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Blue grama
Galleta
Alkali sacaton
Tobosa
Indian ricegrass

Increasers

Poverty threeawn
Burrograss
Ring muhly
Chamiza
Sandhill muhly
Cactus sp.
Pinon
Juniper

Invaders

Pingue
Loco

- b. The decreaseers make up 65 percent of the vegetation and the remainder is increasers. There may be 20 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 15 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#114

Range Site Name Gyp Hills (WP-2)

| Rating | <u>Decreasers</u> | <u>Increasers</u> | Max. | <u>Invaders</u> |
|--------|-------------------|------------------------------|----------------|-----------------|
| | (Count all %) | (Count no more than % shown) | % By Wt. | (Count none) |
| 2 | Blue grama | Poverty threeawn | 10 | Pingue |
| 2 | Galleta | Burrograss | 5 | Loco |
| 2 | Alkali sacaton | Ring muhly | T | |
| 3 | Tobosa | Chamiza | 10 | |
| 4 | Indian ricegrass | Cactus spp. | T | |
| | | Pinon | 10 | |
| | | Juniper | 10 | |
| | | Sandhill muhly | T | |

Maximum total percent 35

| | <u>Range Condition Classification</u> | | | |
|-------------------------------------------|---------------------------------------|-------------|-------------|-------------|
| | <u>Excellent</u> | <u>Good</u> | <u>Fair</u> | <u>Poor</u> |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 15 | 10 | 5 | X |

Approximate Air-Dry Forage Yields By:

| | <u>Range Condition Classification</u> | | | |
|-------------------|---------------------------------------|-------------|-------------|-------------|
| | <u>Excellent</u> | <u>Good</u> | <u>Fair</u> | <u>Poor</u> |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

Sheet 3 of 3
6-20-62
R. A. A.

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-2, SD-3)

TG Section II-E

RANGE SITE - No. 115

1. RANGE SITE NAME: Gyp Hills (SD-2, SD-3)

2. CLIMATE:

- a. Precipitation averages from 8 to 15 inches and ranges from an all time low of 2.1 inches to a record high of 43 inches. The greater part occurs during the months of June, July, August, and September. There are extreme fluctuations from year to year, with periodic droughts. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages less than half an inch per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. These high winds in March, April, and May cause extensive erosion on unprotected soils. High temperatures, fairly constant winds, and low humidity cause the average annual evaporation to range up to 107 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during June, July, August, and September. The growing season of the native warm season plants begins after the last frost, March 29 to April 23, and continues as moisture is available until October 15 to November 15, which are the average dates ending the frost free period. Winters are generally mild; however, there is a recorded low of -30°F. The maximum summer temperature on record is 112°F. Average annual temperatures range from 58°F to 63°F.

3. TOPOGRAPHY AND ELEVATIONS:

The topography is moderate to steeply sloping and may be dissected. Slopes vary from 10 to 50 percent with occasional bluffs. Slopes generally average 25 percent. Elevations vary from 3,500 to 5,500 feet above sea level.

4. SOILS:

- a. Soils of this site are usually interbedded with sandstone, siltstone, and shales and are found on the strongly sloping areas where gypsum out-crops occur. These materials are usually eroded more rapidly leaving a somewhat benched topography on overall slopes of about 10 to 40 percent. The soils are mostly cottonwood and make up about 70 to 80 percent of the area. Textures of the surface are influenced by the interbedded material and are loams and sandy loams. The soils are very shallow ranging from only a few inches in depth to none over weathered gypsum.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

(TG Section II-E
(Range Site No. 115

Cottonwood loam
Cottonwood sandy loam

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legend, or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|-------------------|-------------------|-----------------|
| Gyp grama | Gyp grass | Mesquite |
| Black grama | Tobosa | Creosotebush |
| Blue grama | Fluffgrass | |
| Alkali sacaton | Threeawns | |
| Sideoats grama | Longleaf Ephedra | |
| Little bluestem | Colidina | |
| Sand dropseed | Javelina bush | |
| Chamiza | Broom snakeweed | |
| Common winterfat | | |

- b. The decreaseers make up 70 percent of the vegetation and the remainder is made up of increasers. 10 percent of the composition may be made up of woody species.
- c. Annual herbage yield of this site based on plot clipping is 350 to 700 pounds per acre. *
- d. Herbage covers 15 to 20 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

SW 1/4 Sec. 36, T 10S, R 25E, Chaves County.

* Based on limited clippings and estimates.

RANGE CONDITION GUIDE

#115

Range Site Name Gyp Hills (SD-2, SD-3)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|------------------------------------|-----------|--------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Gyp grama | Gypgrass | 10 | Mesquite |
| 1 | Black grama | Tobosa | 15 | Creosotebush |
| 3 | Blue grama | Fluffgrass | T | |
| 3 | Alkali sacaton | Threeawns | 5 | |
| 3 | Sideoats grama | Colidina | 20 | |
| 4 | Little bluestem | Javelina bush | T | |
| 4 | Sand dropseed | Broom snakeweed | T | |
| 4 | Chamiza | Erigeron spp. | T | |
| 5 | Common winterfat | | | |

Maximum total percent 30

Range Condition Classification

| | Excellent | Good | Fair | Poor |
|-------------------------------------------|-----------|-------|-------|------|
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 15 | 10 | 5 | Any |

Approximate Air-Dry Forage Yields per Acre By:

| | <u>Range Condition Classification</u> | | | | |
|-------------------|---------------------------------------|------|------|------|-------------|
| | Excellent | Good | Fair | Poor | |
| Favorable Years | 350 | | | | Page 3 of 3 |
| Unfavorable Years | | | | | 6-7-62 |
| | | | | | I.W.D. |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--High Plains (HP-1)
Central Plains and Valleys (CP-1)

TG Section II-E

RANGE SITE - No. 116

1. RANGE SITE NAME: Cinder Hills (HP-1, CP-1)

2. CLIMATE:

- a. Annual precipitation averages from 15 to 18 inches. Approximately three-fourths of the annual average occurs during the period April to October inclusive. July and August most commonly receive the highest monthly totals. There are extreme fluctuations from year to year with recurrent droughts that have lasted as long as 4 years. Annual rainfall in the area has fluctuated from a high of 37.65 inches to a low of 5.54 inches in a 10 year period. Summer rainfall is characterized by torrential thundershowers producing high runoff from unprotected soils. Winter precipitation, which averages about 1/2 inch per month, usually occurs in the form of snow.
- b. Wind velocities for the area are high, averaging about 4.5 miles per hour on an annual basis. Spring windstorms, with velocities in excess of 45 miles per hour, occur frequently causing severe wind erosion on soils inadequately protected by vegetation. Humidity is low and evaporation high, averaging 60 inches or more during the period April through October.
- c. The frost free season ranges from about 135 days at the higher elevations to about 165 days at lower elevations. The principal growing season for native plants extends from May 15 to September 15 if sufficient moisture is available. Sub zero temperatures will usually occur every year with minimums of -20°F not uncommon. Summers are characterized by warm days and cool nights, with maximum temperatures seldom reaching 100°F. The percentage of sunshine is high, averaging about 80 percent of the possible amount.

3. TOPOGRAPHY AND ELEVATIONS:

This site consists of steep rounded deposits of volcanic cinders on scoria. These hills rise above the general elevation of the surrounding plains at elevations of approximately 6,000 to 7,500 feet.

RANGE SITE - No. 116

4. SOILS:

- a. Soils of this site are weakly developed and consist of fragments of volcanic cinders and volcanic ash and are of recent origin. They take water rapidly and are resistant to erosion.
- b. Significant soils of this site are: Cinder hills land type with small inclusions of Banderlike gravelley loam.
- c. Detailed descriptions of this soil may be found in the legend for Standard Soil Surveys in Colfax and Union Counties.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Little bluestem
Big bluestem
Sideoats grama
Green needle grass
Mountain muhly
Arizona fescue
Indian grass

Increasers

Blue grama
Three-awns
Oak
Mountain mahogany
Juniper
Pinon
Small soapweed

Invaders

Annuals
Ring grass
Snake weed
Sleepy grass

- b. 65 percent of the vegetation is made up of decreasing species.
- c. Yields: Data are lacking on yields for this site.
- d. Ground cover approximately 30 percent.

6. SPECIFIC TYPE LOCATION:

Capulin Mountain National Monument.

RANGE CONDITION GUIDE

#116

Range Site Name Cinder Hills (HP-1, CP-1)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|---------------------------------------|-----------|-----------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 2 | Little bluestem | Blue grama | 20 | Ring grass |
| 3 | Big bluestem | Three-awns | 5 | Sleepy grass |
| 3 | Sideoats grama | Oak | 10 | Snake weed |
| 3 | Arizona fescue | Mountain mahogany | 5 | Hairy aster |
| 4 | Mountain muhly | Juniper | 5 | Broom snakeweed |
| 5 | Green needlegrass | Pinon | T | |
| 5 | Indian grass | Small soapweed | T | |

Maximum total percent 35

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 30 | 20 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Western Plateaus and Mesas (WP-2)

TG Section II E

RANGE SITE - No. 117

1. RANGE SITE NAME: Cinder Hills (WP-2)

2. CLIMATE:

- a. Average annual rainfall ranges from 10 inches to 14 inches, most of which occurs in the July, August, and September months. Annual precipitation is variable with 64 percent of the years below the average. Prolonged recurrent drought periods of as many as five years duration reduce the production of the site. Light showers, as well as large amounts of rainfall, are effective on the site. High summer heat radiated in the dark cinders reduces the value of summer grazing. The heat likewise increases the value of the site making it a winter range. Snow accumulations melt off of the cinders more rapidly than light-colored soil.
- b. Wind velocities are high in this area and cause evaporation of moisture on unprotected areas.
- c. The growing season averages about 130 days and extends from about mid-May through mid-September.

3. TOPOGRAPHY AND ELEVATION:

- a. In the vicinity of lava flows and volcano craters, the topography ranges from steep volcano craters to moderately steep slopes averaging 10 percent slopes to 40 percent slopes on the crater deposits. Moisture infiltration is so rapid that no erosion occurs from runoff even when high intensity thunder shower type rains occur in the summer months.
- b. The site occurs at elevations from 5,500 to 7,000 feet.

4. SOILS:

- a. The site consists of a deposit of cinders and ash from volcanic eruption. Deposit depths range from several hundred feet near the craters, becoming thinner at greater distance from the crater. On the fringe area of the cinder slopes, the cinders will be only a few inches in depth. Deposits may be over different formations and topographic features.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Rough broken land, volcanic cinders

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|------------------------------------|--------------------|------------------|
| Blue grama | Poverty threeawn | Loco |
| Black grama | Ring muhly | Pingue |
| Sideoats grama | Fluffgrass | Whorled milkweed |
| Needleandthreadgrass | Sandhill muhly | Lupine |
| Bluestem (western) wheat- grass | Gambel oak | |
| Chamiza | Rubber rabbitbrush | |
| Apacheplume | Cactus spp. | |
| Little bluestem | Small soapweed | |
| Galleta | Common winterfat | |
| | Pinon | |
| | Juniper | |

- b. The decreaseers make up 60 percent of the vegetation and the remainder is increasers. There may be 15 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 30 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#117

Range Site Name Cinder Hills (WP-2)

| Rating | Decreasers (Count all %) | Increasers (Count no more than % shown) | Max. % By Wt. | Invaders (Count none) |
|--------|-----------------------------|-----------------------------------------------|------------------------|--------------------------|
| 1 | Blue grama | Poverty threeawn | 5 | Loco |
| 3 | Black grama | Ring muhly | T | Pingue |
| 2 | Sideoats grama | Fluffgrass | T | Whorled |
| 5 | Needleandthreadgrass | Gambel oak | 10 | milkweed |
| 4 | Bluestem (western) | Rubber rabbitbrush | 5 | Lupine |
| | wheatgrass | Cactus sp. | 5 | |
| 5 | Chamiza | Common winterfat | 10 | |
| 5 | Apacheplume | Pinon | 10 | |
| 5 | Little bluestem | Juniper | 5 | |
| 2 | Galleta | Small soapweed | 5 | |
| | | Sandhill muhly | T | |

Maximum total percent 40 -

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 20 | 10 | X |
| Maximum Percent Density | 40 | 30 | | |

Approximate Air-Dry Forage Yields By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

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R. A. A.

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Rocky Mountains (RM-1)

TG Section II E

RANGE SITE - No. 118

1. RANGE SITE NAME: Cinder Hills (RM-1)

2. CLIMATE:

- a. This site occurs in the Western portion of the area. Precipitation ranges from 12 to 16 inches, most of which occurs as summer rains during July, August, and September. Winter snowfall accounts for early spring moisture. Much of the annual growth occurs in the spring months when the snow melts.
- b. A dry season in the spring months of April through June with strong winds from the southwest stops most vegetative growth before the summer rains begin.
- c. Summer growth of vegetation produces most of the forage.

3. TOPOGRAPHY AND ELEVATION:

- a. The site is found in the vicinity of Lava Flows and Volcano Craters. The topography ranges from steep volcano craters to moderately steep slopes, averaging 20 percent to 40 percent on the crater deposits. Moisture penetration is so rapid no erosion occurs. Runoff is very little even when the high intensity thunder shower type rains come in the summer months.
- b. The site occurs at elevations from 6,500 to 8,000 feet elevation.

4. SOILS:

- a. The site is a gravelly loam deposit of cinders and ash from the volcanic eruption. Deposits range from several hundred feet near the craters and become thinner at greater distance from the crater. On the fringe area of the cinder slopes, the cinders will be only a few inches in depth. Deposits may be over various formations and topographic features. Fine ash particles increase greatly the moisture holding capacity and make the site a habitat for abundant vegetative growth. Erosion is very light even in poor range condition.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Rough broken land, volcanic cinders

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Mountain muhly
Pine dropseed
Arizona fescue
Spike muhly
Sideoats grama
Bluestem (western) wheat-
grass
Little bluestem
Junegrass
Needleandthreadgrass
Kentucky bluegrass
Ponderosa pine

Increasers

Blue grama
Gambel oak
Broom snakeweed
Rubber rabbitbrush
Annual grasses
Annual weeds
Pinon
Juniper

Invaders

Pingue
Iris
Loco
Lupine
Whorled milkweed

- b. The decreaseers make up 35 percent of the vegetation and the remainder is increasers. There may be 15 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers from 25 to 35 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#118

Range Site Name Cinder Hills (RM-1)

| Rating | <u>Decreasers</u> (Count all %) | <u>Increasers</u> (Count no more than % shown) | Max. % By Wt. | <u>Invaders</u> (Count none) |
|--------|------------------------------------|------------------------------------------------------|------------------------|---------------------------------|
| 1 | Mountain muhly | Blue grama | 20 | Pingue |
| 1 | Pine dropseed | Gambel oak | 10 | Iris |
| 1 | Arizona fescue | Broom snakeweed | T | Loco |
| 3 | Spike muhly | Rubber rabbitbrush | 5 | Lupine |
| 3 | Sideoats grama | Annual grasses | T | Whorled milkweed |
| 3 | Bluestem (western) wheatgrass | Annual weeds | T | |
| 5 | Little bluestem | Pinon | 10 | |
| 3 | Junegrass | Juniper | 5 | |
| 5 | Needleandthreadgrass | | | |
| 5 | Kentucky bluegrass | | | |
| 5 | Ponderosa pine | | | |

Maximum total percent 35

| | <u>Range Condition Classification</u> | | | |
|-------------------------------------------|---------------------------------------|-------------|-------------|-------------|
| | <u>Excellent</u> | <u>Good</u> | <u>Fair</u> | <u>Poor</u> |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 35 | 25 | 15 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | <u>Range Condition Classification</u> | | | |
|-------------------|---------------------------------------|-------------|-------------|-------------|
| | <u>Excellent</u> | <u>Good</u> | <u>Fair</u> | <u>Poor</u> |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Central Plains and Valleys (CP-3)

TG Section II-E

RANGE SITE - No. 119

1. RANGE SITE NAME: Salty Hills (CP-3)

2. CLIMATE:

- a. Summer rains during the period July through September determine the annual production on this site. Amounts of effective rainfall are extremely variable from year to year and total precipitation amounts range from a low of around 5 inches to a high of 23 inches, with the average annual amount calculated at approximately 14 inches. Storms during the hot summer months are generally of short duration but are usually torrential in nature. Spring rains and some winter storms are more general and less intense. Snowfall may be expected from November through March and during early January amounts may be sufficient so that when combined with attendant cold weather, livestock movements may be limited and feeding is necessary. Winter temperatures may drop to -10°F or lower. Summertime temperatures during July and August may reach 104°F .
- b. Spring and early summer winds extending through the period February through June may cause severe damage to this site and adjoining sites.
- c. The main growing season in the area where this site is located extends from early or mid-May to the middle of October or for approximately 150 days. Cool season growers on the range commence growth prior to and continue growth after these dates, however. Evaporation rates are high during the early spring and summer months.

3. TOPOGRAPHY AND ELEVATIONS:

The site occurs as prominent hilly and broken slopes adjacent to salt lakes and bordering them. The Salt Flats site ordinarily occurs in an upland position, sloping away from the Salt Hills site. Slopes are in excess of 10 percent and may become quite steep. The hills constituting this site do not cover an extensive area and slopes are relatively short in length. Elevation range is from 6,000 feet to 7,000 feet.

4. SOILS:

- a. Soils are deep and usually found occurring as wind deposits from salt lakes and salty mud flats of old salt basins, usually occurring on leeward side of these lakes. Soils profiles may be 60 inches deep, usually

RANGE SITE - No. 119

4. SOILS: (continued)

white in color to pale brown and light gray, silty, massive and hard when dry but very friable when moist. They may contain numerous gypsum crystals. Very alkaline throughout and violently calcareous.

b. Soil series is - Drake loam, saline.

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|----------------------|-------------------|-----------------|
| Alkali sacaton | Desert saltgrass | Snakeweed |
| Salt sedge | Mat muhly | Loco |
| Blue grama | Wire grass | |
| Chamiza | Ring muhly | |
| Winterfat | Three-awn | |
| Western wheatgrass | Burro grass | |
| Vine mesquite | Seepweed | |
| Plains bristlegrass | Greasewood | |
| Squirreltail | Iodine bush | |
| Sacaton | Shadscale | |
| Silver beardgrass | Small saltbush | |
| Tobosa | | |
| Galleta | | |
| Nuttall alkali grass | | |

b. This site is naturally quite unstable and because of shifting soils and removals and depositions by both wind and water, frequent "skips" are common in the vegetative cover.

c. In top condition the site supports a mixture of grasses and shrubs with a relatively small percent of forbs. Alkali sacaton is the dominant species present and makes up over half the percent composition. Salt sedges, sacaton, and desert saltgrass occupy the saltier portions of the site while western wheatgrass, blue grama, galleta, plains bristle grass, squirreltail, and silver beardgrass may be present in small amounts of the composition. Desert saltgrass may be present in amounts up to 10 percent of the total plant composition. Chamise is an important constituent of the site and is regarded as a decreaser along with winterfat. Small muhlys such as wiregrass and mat muhly may be present on the flatter or depression areas intermixed within the site area and burro grass can be associated with these species on such micro-sites. Greasewood, iodine bush, shadscale, seepweed, and small saltbush occupy saltier portions of the site in amounts up to 25 percent of the total plant composition.

RANGE SITE - No. 119

5. POTENTIAL VEGETATION: (continued)

- d. Yield varies from _____ pounds per acre in drought years to _____ pounds per acre in high production years.
- e. In top condition a total ground cover of about 20 percent can be expected on this site.

6. SPECIFIC TYPE LOCATION:

Hills bordering the Salt Lakes northeast of Willard, New Mexico.
Also hills in north portion of the Noble Dunlap Ranch south of Encino, New Mexico.

RANGE CONDITION GUIDE

#119

Range Site Name Salty Hills (CP-3)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|--------------------------|---------------------------------------|-----------|--------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Alkali sacaton | Desert saltgrass | 10 | Snakeweed |
| 3 | Salt sedge | Mat muhly | 5 | Loco |
| 3 | Blue grama | Wire grass | 5 | |
| 2 | Chamise | Ring muhly | 5 | |
| 4 | Winterfat | Three-awns | 5 | |
| 4 | Western wheatgrass | Burrograss | 10 | |
| 5 | Vine-mesquite | Seepweed | 5 | |
| 5 | Plains bristlegrass | Greasewood | 5 | |
| 5 | Bottlebrush squirreltail | Iodine bush | 5 | |
| 4 | Sacaton | Shadscale | 5 | |
| 5 | Silver beardgrass | Small saltbush | 5 | |
| 3 | Tobosa | Annual weeds | 5 | |
| 3 | Galleta | | | |
| 4 | Nuttall alkaligrass | | | |

Maximum total percent 50

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 20 | 15 | 10 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

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A.V.S.

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Western Plateaus and Mesas (WP-2)

TG Section II E

RANGE SITE - No. 120

1. RANGE SITE NAME: River Breaks (WP-2)

2. CLIMATE:

- a. Most of the rainfall occurs during July, August, and early September and varies considerably from year to year from the long time average. Generally storms are of short duration and high intensity. The long time average rainfall is 10 inches.
- b. Wind velocities are high in this area during March and April causing much erosion and evaporation of moisture on unprotected areas.
- c. While the frost-free period of 130 days begins June 1 and ends October 18, there is very little growth due to lack of moisture before July when the summer rains usually start. Likewise, grasses have usually depleted soil moisture and matured before the end of the growing period. However, considerable feed can be grown when early moisture is available.

3. TOPOGRAPHY AND ELEVATION:

- a. This site occupies the physiographic position of breaks to the major water courses with steeper side slopes of alluvium material. The soil mantle is gravelly or stony and gravels may be throughout the profile. Topography varies from moderate to steep, broken terrain with typical slopes, ridges, and gravelly washes. The vegetation on this site varies considerably because of relief. North exposures are capable of supporting a good grass cover whereas south exposures are drier and support lighter grass stands. Ridge tops and small flats included within the site boundaries support a mixture of desert grassland species, including browse or shrubs. Valley or arroyo bottoms which dissect the site are gravelly washes, lined with various species of browse. These washes are the natural water courses for runoff originating on the sloping or hill portion of the site and also for flows coming off from adjoining upper sites such as hills. The units are mapped as one site.
- b. Elevation ranges between 5,000 to 6,500 feet.

4. SOILS:

- a. Soils are shallow, coarse to medium-textured, and may be underlain by poorly consolidated sandstone, siltstone, or gravel and cobble. Outcrops are frequent. Runoff is rapid. Erosion is usually severe. Moisture penetration is poor.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPE, AND PHASES

Cascajo gravelly loam

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|-------------------|-------------------|-----------------|
| Black grama | Sand dropseed | Loco |
| Blue grama | Poverty threeawn | Pingue |
| Alkali sacaton | Burrograss | Lupine |
| Sacaton | Sand sagebrush | Juniper |
| Porter's muhly | Apacheplume | Pinon |
| Indian ricegrass | Creosote bush | |
| Silver bluestem | Tridens | |
| Black grama | Ring muhly | |
| Chamiza | Catclaw | |
| Sideoats grama | Broom snakeweed | |
| Common winterfat | Wolfberry | |
| Arizona cottontop | | |
| Galleta | | |

- b. The decreaseers make up 65 percent of the vegetation and the remainder is increasers.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 15 percent of the ground.

6. SPECIFIC TYPE LOCATION:

Range Site Name River Breaks (WP-2)

| Rating | Decreasers (Count all %) | Increasers (Count no more than % shown) | Max. | Invaders (Count none) |
|--------|-----------------------------|-----------------------------------------------|----------------|--------------------------|
| | | | % By Wt. | |
| 4 | Black grama | Sand dropseed | 10 | Loco |
| 1 | Blue grama | Poverty threawn | 10 | Pingue |
| 3 | Alkali sacaton | Burrograss | 5 | Lupine |
| 5 | Sacaton | Sand sagebrush | T | Juniper |
| 5 | Porter's muhly | Apacheplume | 5 | Pinon |
| 3 | Indian ricegrass | Creosotebush | 5 | |
| 4 | Silver bluestem | Tridens | T | |
| 3 | Black grama | Ring muhly | T | |
| 2 | Chamiza | Catclaw | T | |
| 3 | Sideoats grama | Broom snakeweed | T | |
| 3 | Common winterfat | Wolfberry | T | |
| 5 | Arizona cottontop | | | |
| 3 | Galleta | | | |

Maximum total percent 35

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 15 | 10 | 5 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Western Plateaus and Mesas (WP-3)

TG Section II-E

RANGE SITE - No. 121

1. RANGE SITE NAME: River Breaks (WP-3)

2. CLIMATE:

- a. Precipitation averages from 13 to 16 inches and ranges from an all time low of 5.8 inches to a record high of 31.17 inches. Approximately one-half of the precipitation occurs during the months of July, August, and September. There are extreme fluctuations from year to year with periodic droughts. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages 1 inch per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. High temperatures, fairly constant winds, and low humidity cause the average annual evaporation to range up to 93 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during June, July, and August. The growing season of the native warm season plants begins after the last frost, April 15 to April 28, and continues as moisture is available until October 16 to November 2, which are the average dates ending the frost free period. Winters are generally mild. Average annual temperatures range from 55°F to 60°F.

3. TOPOGRAPHY AND ELEVATIONS:

The slopes on this site are generally steep, but the length of slope in most cases is not very long. Slopes vary from 15 percent to 70 percent with an average of 45 percent. The topography is rough and broken, being deeply dissected by the drainage pattern. Occasional bluffs or low cliffs expose the sedimentary nature of the site.

4. SOILS:

- a. The significant soils that characterize this miscellaneous land type are gravelly loams, gravelly clay loams, stony loams, and stony clay loams. Often there is no true soil present on the site, as frequently erosion has destroyed most of the recognizable soil. Plant, soil, and moisture relationships are generally good. Severe water erosion may result when the site is poorly vegetated.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

(TG Section II-E
(Range Site No. 121

Rough broken land

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legend or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Sideoats grama
Black grama
Blue grama
Hairy grama
Bush muhly
Little bluestem
Arizona cottontop

Increasers

Tridens spp.
Threeawns
Fluffgrass
Broom snakeweed
Desert ceanothus
Shrub live oak
Juniper
Pinon
Skunkbush sumac
Globemallow
Wright lippia
Wolfberry
True mountain mahogany
Apache plume
Cliff rose
Catclaw

Invaders

Mesquite

- b. The decreaseers make up 50 percent of the vegetation and the remainder may be increasers. There may be 20 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is 550 to 775 pounds per acre. *
- d. Recurrent and severe droughts will keep the ground cover thinned to about 20 percent density.

6. SPECIFIC TYPE LOCATION:

Breaks along the Gila and San Francisco drainage.

* Based on limited plot clippings and estimates.

RANGE CONDITION GUIDE

#121

Range Site Name River Breaks (WP-3)

| Rating | Decreasers | Increasers | Max. % By Wt. | Invaders |
|--------|------------------------|---------------------------------------|------------------------|--------------|
| | (Count all percent) | (Count no more than percent shown) | | (Count None) |
| 1 | Sideoats grama | Tridens spp. | 15 | Mesquite |
| 1 | Black grama | Threeawns | 10 | |
| 2 | Blue grama | Shrub live oak | 5 | |
| 2 | Hairy grama | Wright lippia | 5 | |
| 3 | Bush muhly | Mountain mahogany | 5 | |
| 4 | Arizona cottontop | Apache plume | 5 | |
| 5 | Little bluestem | Cliff rose | 5 | |
| | | Fluffgrass | T | |
| | | Broom snakeweed | T | |
| | | Desert Ceanothus | T | |
| | | Juniper | T | |
| | | Pinon | T | |
| | | Skunkbush sumac | T | |
| | | Globemallow | T | |
| | | Wolfberry | T | |
| | | Catclaw | T | |

Maximum total percent 50

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 20 | 15 | 10 | Any |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 550 | | | |
| Unfavorable Years | | | | |

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I.W.D.

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-1, SD-2)

TG Section II-E

RANGE SITE - No. 122

1. RANGE SITE NAME: River Breaks (SD-1, SD-2)

2. CLIMATE:

- a. Average annual precipitation varies from about 9 inches to 10 inches with the majority of this amount falling during summer thunderstorm activity in July, August, and September. Typically, these storms are of short duration and high intensity. Annual production of range forage is dependent upon the frequency and intensity of these storms and because of their erratic nature from year to year forage production is extremely variable. Winter moisture may contribute substantially to the total precipitation amount received during infrequent years. Snowfall amounts may occasionally attain accumulations of 6 inches even in the southernmost portion of the area in which this site is found. Total annual amounts of precipitation received have varied from 3.78 inches in 1860 to 16.3 inches in 1858. Average annual amount is calculated at approximately 8 inches. June is ordinarily a very critical month for plant growth since temperatures are high and rainfall amounts low.
- b. Spring winds may be a deterrent to plant development on this site. High winds, in excess of 60 miles per hour, may be experienced usually during the period February through June. At this period soil moisture suffers severe depletion. Shifting surface soils makes establishment of grass seedlings difficult. Evaporation rates are high throughout the year on this site.
- c. Temperature extremes vary from about -10°F to over 100°F and the principal growing season extends over a period of approximately 200 to 220 days from late March to early November. During some years of above average winter moisture, annuals begin growth as early as February, however. This crop is quite undependable.

3. TOPOGRAPHY AND ELEVATIONS:

This site has steep to moderately steep slopes. Where slopes approach 75 percent, the site merges into class 8 or waste. The site occupies the physiographic position of breaks to the major water courses in the area. The site is ordinarily dissected by side drainages to the main water course or channel and the topography varies from moderately sloping to broken terrain, including rough hills with various inter-mixtures of slopes, ridges, and gravelly washes. Elevational range of the site is from 4,000 feet to 5,500 feet.

4. SOILS:

a. Soils throughout this site are extremely variable and are found occurring on other sites within the sub-areas. They are grouped into this site and are to be considered as a land type representing a composite of sites. This procedure is followed because of the impossibility of field and cartographic delineations of the myriad of sites involved. Generally, the soils may be described as dominantly medium textured, underlain with caliche at various depths. The soil mantle may be gravelly or stony and various sands may even be present both on the surface and extending to considerable depths. Extrusions of malpais, shale, sandstone, and other parent materials may occasionally be present. Depth of soil is variable and permeability generally is classed as rapid to moderate. Water holding capacity also is extremely variable.

b. Soils found on this site include the following:

Miscellaneous land types

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|---------------------|-------------------|-----------------|
| Alkali sacaton | Three-awn | Mesquite |
| Sacaton | Tobosa | Tarbush |
| Bush muhly | Galleta | Creosotebush |
| Indian ricegrass | Burro grass | Rabbitbrush |
| Silver beardgrass | Ring muhly | Catclaw |
| Texas timothy | Hall's panic | Wolfberry |
| Black grama | Hairy tridens | Allthorn |
| Blue grama | Pappus grass | Graythorn |
| Sideoats grama | Sand sage | |
| Hairy grama | Apache plume | |
| Plains bristlegrass | Squawbush | |
| Arizona cottontop | Brickelbrush | |
| Vine mesquite | Seep willow | |
| Dropseeds | Arrow weed | |
| Little bluestem | Bear grass | |
| Chamiza | Yucca | |
| Winterfat | Saltbush | |
| | Sedge | |
| | Smokebush | |
| | Snakeweed | |

RANGE SITE - No. 122

5. POTENTIAL VEGETATION: (continued)

- b. Complementary with the various soils found on this site vegetation is also quite varied. Comparatively the vegetative cover on the site is sparse and exhibits various combinations of species indigent to the Desert Grassland type. Grass species are dominant on the site but shrubs and both annual and perennial forbs are important. Exposure differences within the site are prominent both as to species, density of cover, and amount of forage produced. North exposures are capable of supporting a good grass cover whereas south exposures are drier and support lighter grass stands. Ridge tops and small flats included within the mapping unit support a mixture of desert grassland species including forbs and shrubs. Valley or arroyo bottoms which dissect the site are gravelly washes, lined with various shrub or browse species.
- c. Grass species of importance on this site include black grama, sideoats grama, Texas timothy, galleta and tobosa, bush muhly, blue grama, alkali sacaton, Indian ricegrass, silver beardgrass, hairy grama, plains bristlegrass, Arizona cottontop, and dropseeds. A combination of these species makes up 65 percent of the total plant composition. Smaller percentages of such shrubs as mesquite, creosote bush, tar bush, Mormon tea, chamise, winterfat, sand sage, smoke bush, Apache plume, squawbush, brickel brush, bear grass, seepwillow, and rabbitbrush occur in mixture with each other or with grasses and forbs on the site. Burro grass is an important constituent on areas where heavy textured surface soils dominate. Three-awns are scattered throughout the site in limited amounts not exceeding 10 percent.
- d. Annual forage yields vary markedly from _____ pounds per acre to _____ pounds per acre.
- e. Density of ground cover is typically irregular but generally does not exceed 25 percent.

6. SPECIFIC TYPE LOCATION:

2-1/2 miles southeast of Virden. Also along Rio Grande on LaJoya Grant, and along Rio Grande in vicinity of Hatch.

RANGE CONDITION GUIDE

#122

Range Site Name River Breaks (SD-1, SD-2)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|------------------------------------|-----------|---------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 2 | Alkali sacaton | Three-awns | 10 | Creosote bush |
| 4 | Sacaton | Tobosa) | | Mesquite |
| 3 | Bush muhly | Galleta) | 15 | Tarbush |
| 3 | Indian ricegrass | Burrograss | 5 | Rabbitbrush |
| 4 | Silver beardgrass | Ring muhly | T | Catclaw |
| 4 | Texas timothy | Hall's panicum | 10 | Wolfberry |
| 1 | Black grama | Hairy tridens | 5 | All thorn |
| 3 | Blue grama | Pappus grass | T | Grey thorn |
| 4 | Sideoats grama | Sand sagebrush | 5 | |
| 5 | Hairy grama | Apache plume | 5 | |
| 5 | Plains bristlegrass | Skunkbush sumac | 5 | |
| 5 | Arizona cottontop | Brickelbrush | 5 | |
| 5 | Vine-mesquite | Seepwillow | T | |
| 3 | Dropseeds | Arrow weed | T | |
| 4 | Little bluestem | Beargrass | 5 | |
| 3 | Chamiza | Yucca | 5 | |
| 3 | Winterfat | Saltgrass | 5 | |
| 4 | Forbs | Sedge | 5 | |
| | | Smokebush | 5 | |
| | | Snakeweed | T | |
| | | Forb increasers | 10 | |

Maximum total percent 35

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 25 | 20 | 15 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--High Plains (HP-1, HP-2)
Central Plains and Valleys (CP-1, CP-2)

TG Section II-E

RANGE SITE - No. 123

1. RANGE SITE NAME: Sandy Bottomland (HP-1, HP-2, CP-1, CP-2)

2. CLIMATE:

- a. Annual precipitation averages from 15 to 18 inches. Approximately three-fourths of the annual average occurs during the period April to October inclusive. July and August most commonly receive the highest monthly totals. There are extreme fluctuations from year to year with periodic droughts that have lasted as long as 4 years. Annual rainfall in the area has fluctuated from a high of 37.65 inches to a low of 5.54 inches in a 10 year period. Summer rainfall is characterized by torrential thundershowers producing high runoff from unprotected soils. Winter precipitation, which averages about 1/2 inch per month, usually occurs in the form of snow.
- b. Wind velocities for the area are high, averaging about 4.5 miles per hour on an annual basis. Spring windstorms, with velocities in excess of 45 miles per hour, occur frequently causing severe wind erosion on soils inadequately protected by vegetation. Humidity is low and evaporation high, averaging 60 inches or more during the period April through October.
- c. The frost free season ranges from about 135 days at the higher elevations to about 165 days at lower elevations. The principal growing season for native plants occurs from May 15 to September 15 if sufficient moisture is available. Sub zero temperatures will usually occur every year with minimums of -20°F not uncommon. Summers are characterized by warm days and cool nights, with maximum temperatures seldom reaching 100°F. The percentage of sunshine is high, averaging about 80 percent of the possible amount.

3. TOPOGRAPHY AND ELEVATIONS:

This site consists of level to gently sloping areas in valley or swale position that are subject to periodic inundation. It occurs at elevations ranging from approximately 4,000 feet to 6,000 feet.

RANGE SITE - No. 123

4. SOILS:

- a. Soils of this site consist of deep sands, subject to periodic overflow.
- b. Significant soils of this site are:

Lincoln loamy fine sand
- c. Detailed descriptions of these soils can be found in the descriptive legend for the Standard Soil Survey in Union County.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|-------------------|--------------------|-----------------|
| Sand bluestem | Blue grama | Sand muhly |
| Little bluestem | Hairy grama | Ear muhly |
| Yellow indiagrass | Red lovegrass | Buffalo grass |
| Switch grass | Tumbling lovegrass | Queen's delight |
| Sideoats grama | Three-awns | Mesquite |
| | Sand sagebrush | Cholla cactus |
| | Skunkbush sumac | Prickly pear |
| | Small soapweed | Annuals |

- b. 80 percent of the vegetation is made up of decreasing species. Some woody vegetation is a part of the climax in this site and up to 10 percent of woody species may occur in excellent range condition.
- c. Yields - data on yields are lacking.
- d. Ground cover -

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#123

Range Site Name Sandy Bottomland (HP-1, HP-2, CP-1, CP-2)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|------------------------------------|-----------|-----------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Sand bluestem | Blue grama) | 10 | Sand muhly |
| 2 | Little bluestem | Hairy grama) | | Ear muhly |
| 4 | Yellow indiangrass | Red lovegrass | T | Buffalo grass |
| 4 | Switchgrass | Tumbling lovegrass | T | Queen's delight |
| 4 | Sideoats grama | Three-awns | T | Mesquite |
| | | Sand sagebrush | 5 | Cholla cactus |
| | | Skunkbush sumac | 5 | Prickly pear |
| | | Sand plum | 5 | Annuals |

Maximum total percent 20

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 40 | 40 | 30 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-3)

TG Section II-E

RANGE SITE - No. 123a

1. RANGE SITE NAME: Sandy Bottomland (SD-3)

2. CLIMATE:

- a. Arid to semi-arid climate with an annual precipitation for this resource area averaging from 11 to 15 inches. The wettest year on record was at Ft. Sumner (41.37 inches) and the driest year was at Carlsbad (2.95 inches). Approximately 75 percent of the annual rainfall occurs from May to October inclusive. June, July, August, and September are the months of highest rainfall usually. Summer rainfall is characterized by torrential thundershowers of high intensity and short duration that produce high runoff from unprotected soils. There are extreme fluctuations in the amount of precipitation from year to year, and periodic droughts have occurred, some lasting for 4 years or longer. More years of below average rainfall can be expected than those above the average precipitation. Winter moisture may occur in the form of rain and/or snow and usually averages less than half an inch per month. When snow occurs, it melts quickly, and snow cover persisting as long as one week is unusual.
- b. Wind velocities in this area are high. February, March, April, and May are characterized by frequent wind storms with velocities in excess of 50 miles per hour, causing severe wind erosion on soils unprotected by adequate vegetation. Humidity is low and evaporation is high, averaging from 70 to 85 inches to in excess of 120 inches (from an evaporation pan).
- c. The frost free season of this sub-area ranges from about 187 days at Ft. Sumner in the northern part to 228 days at Carlsbad Caverns in the southern part. The growing season of the native warm season plants begins after the last frost, April 2 to 19 (South to North) and continues as moisture is available until the latter part of October or the first of November ending the frost free period. Winters are characteristically warm and open, with occasional "northers" dropping the temperature to 0°F or lower for short periods of time in about one-third of the years on record. Occasional and infrequent temperatures as low as -30°F have occurred. Summers are hot with temperatures of over 105°F occurring frequently from May through September. The annual average temperature varies from 59°F at Roswell to 63°F at Carlsbad.

3. TOPOGRAPHY AND ELEVATIONS:

The topography is level to gently undulating areas adjacent to the Pecos River and its tributaries. Elevation ranges from 3,100 feet around Jal and Carlsbad areas to 4,200 feet around the Fort Sumner area.

4. SOILS:

- a. These soils occur adjacent to the Pecos River and its tributaries. The soil profile is mostly very fine sandy loams and loamy sands but thin layers of silty clay loam and silty clay may occur. The soil is stratified. The soils have low water holding capacities but may have water tables which influence the moisture conditions in the root zones of deep rooted plants (water tables at 4 feet or deeper). These soils are slightly to non-saline and are subject to occasional overflows.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Harkey fine sandy loam
Harkey very fine sandy loam

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legend, or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Alkali sacaton
Sacaton
Vine-mesquite
Sand bluestem
Little bluestem
Indiangrass

Increasers

Inland saltgrass
Blue grama
Threeawns

Invaders

French tamarisk
Annuals
Bermudagrass

- b. The decreaseers make up 80 percent of the vegetation and the remainder is made up of increasers.
- c. Annual herbage yield of the site based on plot clippings varies from 2,000 pounds per acre in favorable years to 600 pounds per acre in less favorable years when the site is in excellent condition. *
- d. Basal herbage covers 25 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

Sec. 6 NE of Lake Arthur, T 15S, R 27E, in Chaves County. (East side of Pecos River).

* Based on limited clipping data and estimates.

Range Site Name Sandy Bottomland (SD-3)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|---------------------|------------------------------------|----------------|-----------------|
| | (Count all percent) | (Count no more than percent shown) | % By Wt. | (Count None) |
| 1 | Alkali sacaton | Inland saltgrass | 15 | French Tamarisk |
| 3 | Sacaton | Blue grama | 5 | Bermudagrass |
| 2 | Vine-mesquite | Threeawns | 5 | Annuals |
| 5 | Sand bluestem | | | |
| 5 | Little bluestem | | | |
| 5 | Indian grass | | | |

Maximum total percent 20

| Percent by Weight of Potential Vegetation | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Minimum Percent Density | 76-100 | 51-75 | 50-26 | 0-25 |
| | 25 | 25 | 15 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 2,000 | | | |
| Unfavorable Years | 600 | | | |

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Range Site Name Sandy Bottomland (SD-3)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|---------------------|------------------------------------|----------------|-----------------|
| | (Count all percent) | (Count no more than percent shown) | % By Wt. | (Count None) |
| 1 | Alkali sacaton | Inland saltgrass | 15 | French Tamarisk |
| 3 | Sacaton | Blue grama | 5 | Bermudagrass |
| 2 | Vine-mesquite | Threeawns | 5 | Annuals |
| 5 | Sand bluestem | | | |
| 5 | Little bluestem | | | |
| 5 | Indian grass | | | |

Maximum total percent 20

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 25 | 25 | 15 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 2,000 | | | |
| Unfavorable Years | 600 | | | |

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E.C.S.

RANGE SITE - No. 124

5. POTENTIAL VEGETATION: (continued)

c. Yield: Air Dry herbage 6,000 to 8,000 pounds per acre.

d. Ground cover: 60 percent.

6. SPECIFIC TYPE LOCATION:

Pintada arroyo, T 8N, R 18E, NMPM.

RANGE CONDITION GUIDE

#124

Range Site Name Loamy Bottomland (HP-1, HP-2, HP-3, CP-1, CP-2, CP-3)

| Rating | Decreasers | Increasers | Max. % By Wt. | Invaders |
|--------|---------------------|---------------------------------------|------------------------|---------------|
| | (Count all percent) | (Count no more than percent shown) | | (Count None) |
| 1 | Alkali sacaton | Blue grama | 10 | Burro grass |
| 1 | Wright sacaton | Galleta | 10 | Sand muhly |
| 1 | Western wheatgrass | Tobosa | 10 | Ring muhly |
| 1 | Vine mesquite | Buffalo grass | T | Three-awns |
| 4 | Sideoats grama | Silver bluestem | 5 | Mesquite |
| 4 | Switchgrass | Cane bluestem | 5 | Cholla cactus |
| 5 | Yellow indiagrass | Mat muhly | T | Prickly pear |
| 5 | Chamize | Hall's panicum | T | Johnson grass |
| 5 | Apache plume | | | |
| 5 | Canada wild rye | | | |

Maximum total percent 30

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 40 | 40 | 30 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 8,000 | | | |
| Unfavorable Years | 4,000 | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Central Plains and Valleys (CP-4)
Southern Desert Valleys and Plains (SD-2, SD-3, SD-4)
Western Plateaus and Mesas (WP-3)

TG Section II-E

RANGE SITE - No. 125

1. RANGE SITE NAME: Loamy Bottomland (CP-4, SD-2, SD-3, SD-4, WP-3)

2. CLIMATE:

- a. Precipitation averages from 8 to 21 inches and ranges from an all time low of 2.1 inches to a record high of 43 inches. Approximately 1/2 of the precipitation occurs during the months of June, July, August, and September. The run-on from the drainage has more effect than the actual precipitation on the site. There are extreme fluctuations from year to year with periodic droughts. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages from .5 to 1.5 inches per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. High temperatures, fairly constant winds, and low humidity cause the average annual evaporation to range from 90 to 107 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during June, July, August, and September. The growing season of native warm season plants begins after the last frost, March 29 to April 29, and continues as adequate moisture is available until October 15 to November 15, which are the average dates ending the frost free period. Winters are generally mild; however, there is a recorded low of -30°F. The maximum summer temperature on record is 112°F. Average annual temperatures range from 55°F to 63°F.

3. TOPOGRAPHY AND ELEVATIONS:

This site varies from 3,900 to 5,500 feet elevation. It occurs principally on flood plains of intermittent streams. The dominant slope for this site is 1 to 2 percent.

RANGE SITE - No. 125

4. SOILS:

- a. Soils are deep. Surface textures are medium and may have gravel lenses intermixed. Water-holding capacity is medium to high. Intake rates are medium.
- b. The significant soils in this site may include one or more of the following soils:

Mimbres loam, flooded phase
Mixed alluvial soils
Harkey loam

- c. Complete soil series descriptions are available in the Soil Survey Description legends.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Alkali sacaton
Sacaton
Sideoats grama
Blue grama
Vine-mesquite
Black grama
Hairy grama
Arizona cottontop
Cane bluestem

Increasers

Apache plume
Tobosa
Burro grass
Ring muhly
Three-awns
Fluffgrass
Loco
Broom snakeweed
Soaptree yucca
Cactus
Mesquite
Wavyleaf thistle
White horsenettle
Longleaf Ephedra
Croton
Threadleaf groundsel
Condalia
Spiny allthorn
Littleleaf sumac
Skunkbush sumac

Invaders

TG Section II-E

RANGE SITE - No. 125

5. POTENTIAL VEGETATION: (continued)

b. Annual herbage yield of this site, based on plot clipping, is 1,800 to 2,500 pounds per acre.

c. Density should be from 35 to 40 percent.

6. SPECIFIC TYPE LOCATION:

4 miles south of Hillsboro on Trujillo Creek.

Animas Creek, 12 miles south of Animas, SE 1/4 of Sec. 17, T 29S, R 19W..

RANGE CONDITION GUIDE

#125

Range Site Name Loamy Bottomland (CP-4, SD-2, SD-3, SD-4, WP-3)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|---------------------------------------|-----------|--------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Alkali sacaton | Apache plume | 10 | |
| 1 | Sacaton | Tobosa | 10 | |
| 4 | Sideoats grama | Burro grass | 35 | |
| 4 | Blue grama | Ring muhly | 5 | |
| 2 | Vine-mesquite | Three-awns | 5 | |
| 5 | Black grama | Fluffgrass | T | |
| 5 | Hairy grama | Loco | T | |
| 4 | Arizona cottontop | Broom snakeweed | T | |
| 3 | Cane bluestem | Soaptree yucca | T | |
| | | Cactus | T | |
| | | Mesquite | T | |
| | | Wavyleaf thistle | T | |
| | | White horsenettle | T | |
| | | Longleaf Ephedra | T | |
| | | Croton | T | |
| | | Threadleaf groundsel | T | |
| | | Condalia | T | |
| | | Spiny allthorn | T | |
| | | Littleleaf sumac | 5 | |
| | | Skunkbush sumac | T | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 35 | 25 | 20 | Any |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 2,500 | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Northern Desert Valleys and Mesas (ND)
Southern Desert Valleys and Plains (SD-1)
Western Plateaus and Mesas (WP-1, WP-2)

TG Section II E

RANGE SITE - No. 126

1. RANGE SITE NAME: Loamy Bottomland (ND) (WP-1, WP-2) (SD-1)

2. CLIMATE:

- a. The major portion of precipitation comes in the form of rain, falling mostly in the growing season from July 1 to September 20. Thunderstorms of short duration are the rule; however, occasionally there is a general rain. Average annual moisture averages from 7 to 12 inches. Snow accounts for less than half of the moisture.
- b. Strong winds blowing from the southwest evaporate much of the winter moisture before the temperature warms up enough for plant growth.
- c. The growing season, which starts late in April and ends early in October, is from 130 to 160 days. Even with this long growing season, little forage growth can be expected until the middle of July when the summer rains usually start.

3. TOPOGRAPHY AND ELEVATION:

- a. The site has various slopes, usually between 3 and 10 percent. The site is found in the main water courses of a watershed and often fans out into the higher hill above. Flooding is characteristic to the site giving it additional moisture above the normal rainfall which occurs on the area. Browse and shrub height above snow levels make the site a valuable winter range in deep snow accumulation periods.
- b. Elevation ranges between 5,000 and 6,500 feet elevation.

4. SOILS:

- a. Soils are deep with medium-textured surfaces. Water intake is moderate. Organic matter content is medium to high and the soils have good water holding capacity. With good vegetative cover, erosion is slight except for occasional gullies. Soils are often stratified by many materials from gravel to clay.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Gila loam
Glendale loam
Vinton loam
Redfield loam
Genola loam
San Jose loam
Woodrow loam

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Blue grama
Sacaton
Bluestem (western) wheat-
grass
Chamiza
Vine mesquite
Galleta

Increasers

Sand dropseed
Rubber rabbitbrush
Broom snakeweed
Mat muhly
Big sagebrush

Invaders

Pingue
Lupine
Loco
Whorled milkweed

- b. The decreaseers make up 70 percent of the vegetation and the remainder is increasers.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 40 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#126

Range Site Name Loamy Bottomland (ND) (WP-1) (WP-2) (SD-1)

| Rating | Decreasers (Count all %) | Increasers (Count no more than % shown) | Max. % By Wt. | Invaders (Count none) |
|--------|----------------------------------|-----------------------------------------------|------------------------|--------------------------|
| 2 | Blue grama | Sand dropseed | 25 | Pingue |
| 1 | Sacaton | Rubber rabbitbrush | 5 | Lupine |
| 1 | Bluestem (western) wheatgrass | Broom snakeweed | T | Loco |
| 2 | Chamiza | Mat muhly | 5 | Whorled |
| 4 | Vine mesquite | Big sagebrush | 15 | milkweed |
| 3 | Galleta | | | |

Maximum total percent 30

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 40 | 30 | 20 | X |
| Maximum Percent Density | 45 | | | |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--High Plains (HP-1, HP-2, HP-3)
Central Plains and Valleys (CP-1, CP-2)

TG Section II-E

RANGE SITE - No. 127

1. RANGE SITE NAME: Clayey Bottomland (HP-1, HP-2, HP-3, CP-1, CP-2)

2. CLIMATE:

- a. Annual average precipitation for this area averages from approximately 14 to 17 inches. About three-fourths of this amount falls during the period April to October, inclusive, with July and August usually recording the highest monthly averages. Spring and summer rainfall is characterized by torrential thundershowers of high intensity and short duration, that produce high runoff from unprotected soils. There are extreme fluctuations in the amount of rainfall from year to year, and frequent droughts lasting from 3 to 4 years. Annual rainfall in the area has ranged from a high of 40 inches to as low as 6.15 inches. Winter moisture may occur as either rain or snow, and usually averages less than 1/2 inch per month.
- b. Wind velocities in this area are high and average about 5.3 miles per hour on an annual basis. The spring months are characterized by frequent wind storms with velocities in excess of 45 miles per hour which cause excessive erosion on soils not protected by a good cover of vegetation. Humidity is low and evaporation is high, usually averaging 75 inches during the period April to October inclusive.
- c. The principal growing season of native vegetation occurs during the period May through September inclusive. The frost free season averages 188 days April 17 to October 22. Summers are hot, with maximum temperatures frequently reaching 100°F or more from late May to early September. Winters are characterized by warm sunny days and cold nights, with occasional "northers" that may keep temperatures below freezing for several days. Temperatures of 0°F or lower have occurred in about half of the years of record, with -18°F the lowest temperature of record in the area. The percentage of sunshine is high, averaging 80 percent or more of the possible amount in most years.

3. TOPOGRAPHY AND ELEVATIONS:

This site consists of level to gently sloping areas of valley or flood plain soils that are subject to periodic inundation from flood waters. They occur at all elevations of the resource areas, from approximately 3,000 feet to 6,500 feet.

RANGE SITE - No. 127

4. SOILS:

- a. Soils of this site are deep, silty clay loams, and clay loams of alluvial origin. They are deep, take water slowly, but have high water holding capacity. They usually contain some salt or alkali in the sub-soil.
- b. Significant soils series of this site are:
- | | |
|-------------------------|-------------------------|
| Montoya clay loam | Spur clay loam |
| Montoya silty clay loam | Stegall silty clay loam |
| Orman silty clay loam | |
- c. Detailed descriptions of these soils can be found in the descriptive legend for Soil Surveys in Colfax, Harding, Lea, Quay, Roosevelt Counties, and the Southwest Quay area.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Alkali sacaton
Western wheatgrass
Vine mesquite
Switch grass
Chamize
Winter fat

Increasers

Tobosa
Galleta
Blue grama
Buffalo grass
Mat muhly
Inland salt grass
Wolfberry
Rayless goldenrod

Invaders

Burro grass
Alkali muhly
Poverty sumpweed
Iron weed
Mesquite
Cholla cactus
Prickly pear
Sleepy grass
Hairy tridens

- b. 70 percent of the climax vegetation is made up of decreasing species. Alkali sacaton is the usual climax dominant of this site with western wheat the most important associated species at the higher elevations, and vine mesquite at lower elevations.
- c. Yield: Air dry herbage 6,000 to 8,000 pounds per acre.
- d. Ground cover approximately 50 percent.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#127

Range Site Name Clayey Bottomland (HP-1, HP-2, HP-3, CP-1, CP-2)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|------------------------------------|-----------|------------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Alkali sacaton | Tobosa) | 30 | Burro grass |
| 2 | Western wheatgrass | Galleta) | | Alkali sacaton |
| 3 | Vine mesquite | Blue grama | 30 | Poverty sumpweed |
| 4 | Chamize | Buffalo grass | 10 | Iron weed |
| 5 | Switchgrass | Mat muhly | 5 | Mesquite |
| 5 | Winter fat | Inland saltgrass | 10 | Cholla cactus |
| | | Wolfberry | T | Prickly pear |
| | | Rayless goldenrod | T | Sleepy grass |
| | | | | Hairy tridens |
| | | | | Broom snakeweed |

Maximum total percent 30

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 50 | 50 | 40 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 8,000 | | | |
| Unfavorable Years | 2,000 | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Central Plains and Valleys (CP-3)

TG Section II-E

RANGE SITE - No. 128

1. RANGE SITE NAME: Clayey Bottomland (CP-3)

2. CLIMATE:

- a. Average annual precipitation is approximately 14 inches for this site. Fluctuations in annual and seasonal amounts received may be quite extreme ranging from 70 percent below the average for drought years up to 150 percent of average for years of maximum production. The critical time for soil moisture-plant relationship is during the main growing season which extends from July through September. Winter moisture and spring growth of alkali sacaton are influential in increasing production on this site. Summer storms are usually intense and of short duration. These storms, although of importance from the standpoint of grass production, are also of the type that causes severe gullying on this site when the natural cover is broken. This site is capable of storing large amounts of runoff supplied to it from adjoining drainage areas. Snowfall may be expected from November through March and during January amounts of snow may accumulate to a sufficient depth to inhibit livestock movements. Combined with protracted periods of extremely low temperatures, moderately severe snowstorms will demand the feeding of livestock during these periods.
- b. Typically, the Estacado or Staked Plains climate is characterized by frequent rather strong, spring windstorms. This site is affected by wind where the cover has been severely depleted but is more resistant to this type of damage than to water erosion.
- c. Winter temperatures may drop to well below zero and summertime temperature records indicate a possible high of 104°F. The frost-free period is from about May 15 to September 1 but growth of some species may commence and end prior to and for some period after these dates. Both warm season and cool season growers on this site are influenced by the precipitation and temperature pattern.

3. TOPOGRAPHY AND ELEVATIONS:

This site occurs as open swales or drainage ways. Sizes vary from narrow, finger-like valleys in the foothill area up to broader, plain-like drainages extending out into the plains area but in all cases native vegetation receives the benefit of flood irrigation either from flows traversing the main channel or runoff from the intermediate side slopes. Elevation range

3. TOPOGRAPHY AND ELEVATIONS: (continued)

is 6,000 feet to 7,000 feet. Dominant slope is less than 2 percent and ordinarily does not exceed 5 percent.

4. SOILS:

a. Soils are silt loam or finer textured in the surface and may be highly stratified. They may be underlain by various materials ranging from gravel to clay. Soils are slowly to very slowly permeable but water-holding capacity is high. This site receives overflow moisture.

b. Soils found on this site include the following:

Mestano clay loam, overflow

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Vine mesquite
Alkali sacaton
Sacaton
Blue grama
Western wheatgrass
Bluegrass
Cane beardgrass
Winterfat
Squirreltail
Junegrass
Dropseeds

Increasers

Chamise
Galleta
Tobosa
Burro grass
Mat muhly
Wiregrass
Three-awn
Ring grass
Threadleaf groundsel
Yucca
Buffalo grass
Sedge

Invaders

Snakeweed
Fluffgrass
Loco
White horsenettle
Prickly pear
Tarbush
Mesquite

b. When in top condition this site is dominantly made up of a mixture of perennial bunchgrasses with a limited percent of understory sod-forming grasses. Sod formers such as mat muhly, wire grass, and buffalo grass do not exceed 25 percent. Dominant bunchgrasses include alkali sacaton and blue grama, principally, and alkali sacaton may make up about 75 percent of the cover. Western wheatgrass is present as an important constituent but does not normally exceed 10 percent of the total plant composition. Vine mesquite is an important decreaser on this site and is found usually as an understory species to the dominating alkali sacaton. Galleta may be present on the site up to a maximum of approximately 20 percent of the total plant composition. Chamise occurs as

RANGE SITE - No. 128

5. POTENTIAL VEGETATION: (continued)

scattered plants, never in amounts exceeding 10 percent of the composition. Invaders on this site may include mesquite, tar bush, groundsel, nettle, sage, snakeweed, and fluffgrass.

c. Yields on this site have been recorded as follows:

| | |
|-----------|-----------------------------------------------------------------------------------------|
| Fair | - 1,250 pounds per acre |
| Good | - 2,800 pounds per acre |
| Excellent | - 5,400 pounds per acre (with 5-1/2 percent seasonal precipitation, 100 percent normal) |

d. Density of cover is 40 percent or higher.

6. SPECIFIC TYPE LOCATION:

First large draw or swale south of Moriarty, along Highway 41.

RANGE CONDITION GUIDE

#128

Range Site Name Clayey Bottomland (CP-3)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|--------------------------|---------------------------------------|-----------|-------------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 2 | Vine-mesquite | Chamise | 10 | Snakeweed |
| 1 | Alkali sacaton | Galleta) | 20 | Fluffgrass |
| 4 | Sacaton | Tobosa) | | Loco |
| 2 | Blue grama | Burrograss | 5 | White horsenettle |
| 3 | Western wheatgrass | Mat muhly | 5 | Prickly pear |
| 5 | Bluegrass | Wire grass | 5 | Tar bush |
| 5 | Cane beardgrass | Three-awns | T | Mesquite |
| 4 | Winterfat | Ring muhly | T | |
| 5 | Bottlebrush squirreltail | Threadleaf groundsel | T | |
| 5 | Prairie junegrass | Yucca | T | |
| 4 | Dropseeds | Buffalo grass | 10 | |
| | | Sedge | 5 | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 40 | 35 | 30 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 5,400 | 2,800 | 1,250 | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE

Soil Conservation Service

Albuquerque, New Mexico

Land Resource Area--Central Plains and Valleys (CP-4)

Southern Desert Valleys and Plains (SD-1, SD-2, SD-3, SD-4)

Western Plateaus and Mesas (WP-3)

TG Section II-E

RANGE SITE - No. 129

1. RANGE SITE NAME: Clayey Bottomland (CP-4, SD-1, SD-2, SD-3, SD-4, WP-3)

2. CLIMATE:

- a. Precipitation averages from 8 to 21 inches and ranges from an all time low of 2.1 inches to a record high of 43 inches. Approximately one-half of the precipitation occurs during the months of June, July, August, and September. The run on from the drainage has more effect than the actual precipitation on the site. There are extreme fluctuations from year to year, with periodic drouths. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages from 1/2 to 1.5 inches per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. High temperatures, fairly constant winds, and low humidity cause the average annual evaporation to range from 90 to 107 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during June, July, August, and September. The growing season of native warm season plants begins after the last frost, March 29 to April 29, and continues as adequate moisture is available until October 15 to November 15, which are the average dates ending the frost free period. Winters are generally mild, however, there is a recorded low of -30°F. The maximum summer temperature on record is 112°F. Average annual temperatures range from 55°F to 63°F.

3. TOPOGRAPHY AND ELEVATIONS:

This site lies between 4,000 and 5,500 feet above sea level. It occurs on flood plains of mostly intermittent streams. The dominant slope for this site is 1 percent or less.

4. SOILS:

- a. The soils on this site are silt loam or finer textured, and are highly stratified. They may be underlain by any type of material from gravel to clay. Intake rates are slow to very slow. Although soils take water slowly, they have a high waterholding capacity and are generally quite productive.

RANGE SITE - No. 129

4. SOILS: (continued)

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

| | | | | | |
|----------------------------------------|---|---|---|---|---|
| Queen silty clay | | | | | |
| Mimbres silty clay loam, flooded phase | | | | | |
| Mohave | " | " | " | " | " |
| Vekol | " | " | " | " | " |
| Montoya (like) | " | " | " | " | " |
| Stegall silty | " | " | " | " | " |

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legend or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Sacaton
Alkali sacaton
Vine-mesquite
Sideoats grama
Cane bluestem
Blue grama
Arizona cottontop
Black grama

Increasers

Tobosa
Threeawns
Creeping muhly
Mat muhly
Chamiza
Common winterfat
American tarbush
Mesquite
Broom snakeweed
Spiny allthorn
Loco
Soaptree yucca
Cactus

Invaders

Burrograss
Seep willow

- b. The decreaseers make up 60 percent and the remainder may be increasers. There may be 25 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clippings is 2,000 to 2,500 pounds per acre. *
- d. Herbage covers from 30 to 40 percent of the ground surface.

* Based on limited plot clippings and estimates.

TG Section II-E

RANGE SITE - No. 129

6. SPECIFIC TYPE LOCATION:

700 feet south of ~~NN~~ corner of Sec. 26, T 26S, R 20W, Hidalgo County.

Main draw on Arlo Graham's ranch southwest of Nutt is a good example of this site.

On the L7 Ranch SE 1/4 of Sec. 1, T 14S, R 3W, Sierra County.

200 yards north of SW corner, Sec. 24, R 8W, T 21S, Luna County.

RANGE CONDITION GUIDE

#129

Range Site Name Clayey Bottomland (CP-4, SD-1, SD-2, SD-3, SD-4, WP-3)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|------------------------------------|-----------|--------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Alkali sacaton | Threeawns | 5 | |
| 1 | Vine-mesquite | Burrograss | 5 | |
| 1 | Sacaton | American tarbush | 5 | |
| 2 | Sideoats grama | Creeping muhly | 5 | |
| 2 | Cane bluestem | Red muhly | 5 | |
| 4 | Blue grama | Common winterfat | 10 | |
| 5 | Arizona cottontop | Chamiza | 25 | |
| 5 | Black grama | Tobosa | 40 | |
| | | Buffalograss | 10 | |
| | | Threadleaf groundsel | T | |
| | | Mesquite | T | |
| | | Broom snakeweed | T | |
| | | Spiny allthorn | T | |
| | | Loco | T | |
| | | Scaptree yucca | T | |
| | | Cactus little soapweed | T | |
| | | Condalia | T | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 25 | 15 | Any |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable years | 2,000 | | | |
| Unfavorable Years | | | | |

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UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Northern Desert Valleys and Mesas (ND)
Western Plateaus and Mesas (WP-1, WP-2)

TG Section II E

RANGE SITE - No. 130

1. RANGE SITE NAME: Clayey Bottomland (ND, WP-1, WP-2)

2. CLIMATE:

- a. Precipitation varies from less than 10 inches in small areas to 13 inches at the higher elevations adjacent to the lower elevations of the Mountain Range Sites and Hills. Approximately one-half of the moisture occurs in the form of high intensity thunder showers over a short period of time. The high intensity rainfall period is the summer months of July, August, and September. Runoff may be excessive on the sites in the poorer range condition classes. Snowfall throughout the winter months accounts for limited moisture. Early and late winter moisture in the form of light rain occurs some years, but contributes little to the moisture supply.
- b. Hard blowing southwest winds are common in the early spring, melting winter snow accumulations and evaporating soil moisture before the growing season starts.
- c. The growing season is about 140 days with 110 days frost-free from June 1 to the latter part of September. Low rainfall years will result in early killing frost in the fall. Years of higher rainfall in the late fall will delay the frost resulting in a longer growing season.

3. TOPOGRAPHY AND ELEVATION:

- a. The site occurs at elevations from 5,000 to 7,000 feet. Mountain sites, hills, or breaks are common at the higher elevations of the site where fingers fan into the rough topography. The site includes the main water courses of the water sheds, often gullied.
- b. The site is flat to gently sloping from 1 percent to 5 percent along the main water courses. The site may be gullied or have an arroyo cut through the site. Runoff from the above elevations floods the site periodically giving additional moisture.

4. SOILS:

- a. Soils are deep with profiles of clay and clay loams. The organic matter and water holding capacities are high. Initial water intake rates are rapid due to high organic matter and cracking of the clayey soils, but long periods of wetting will swell the cracks and cause runoff. Erosion is slight except for occasional gullies.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Ladrillo clay
Puerco clay loam and clay
Prewitt clay loam
Christianburg clay
Billings silty clay loam

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Alkali sacaton
Galleta
Blue grama
Spike muhly
Bluestem (western) wheat-
grass
Chamiza

Increasers

Mat muhly
Poverty threeawn
Broom snakeweed
Big sagebrush
Rubber rabbitbrush
Fluffgrass

Invaders

Loco
Lupine
Whorled milkweed
Pingue

- b. The decreaseers make up 65 percent of the vegetation and the remainder is increasers.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers from 30 to 45 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#130

Range Site Name Clayey Bottomland (ND) (WP-1) (WP-2)

| Rating | <u>Decreasers</u> | <u>Increasers</u> | <u>Max.</u> | <u>Invaders</u> |
|--------|--------------------|------------------------------|----------------|-----------------|
| | (Count all %) | (Count no more than % shown) | % By Wt. | (Count none) |
| 1 | Alkali sacaton | Mat muhly | 5 | Loco |
| 2 | Galleta | Poverty threeawn | 5 | Pingue |
| 2 | Blue grama | Broom snakeweed | 5 | Lupine |
| 4 | Spike muhly | Big sagebrush | 10 | Whorled |
| 3 | Bluestem (western) | Rubber rabbitbrush | 10 | milkweed |
| | wheatgrass | Fluffgrass | 5 | |
| 3 | Chamiza | | | |

Maximum total percent 35

| | <u>Range Condition Classification</u> | | | |
|-------------------------------------------|---------------------------------------|-------------|-------------|-------------|
| | <u>Excellent</u> | <u>Good</u> | <u>Fair</u> | <u>Poor</u> |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 40 | 30 | 20 | X |
| Maximum Percent Density | 45 | | | |

Approximate Air-Dry Forage Yields per Acre By:

| | <u>Range Condition Classification</u> | | | |
|-------------------|---------------------------------------|-------------|-------------|-------------|
| | <u>Excellent</u> | <u>Good</u> | <u>Fair</u> | <u>Poor</u> |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--High Plains (HP-1, HP-2, HP-3)
Central Plains and Valleys (CP-1, CP-2)

TG Section II-E

RANGE SITE - No. 131

1. RANGE SITE NAME: Salty Bottomland (HP-1, HP-2, HP-3, CP-1, CP-2)

2. CLIMATE:

- a. Annual average precipitation for this area averages from approximately 14 to 17 inches. About three-fourths of this amount falls during the period April to October inclusive, with July and August usually recording the highest monthly averages. Spring and summer rainfall is characterized by torrential thundershowers of high intensity and short duration that produce high runoff from unprotected soils. There are extreme fluctuations in the amount of rainfall from year to year and frequent droughts lasting from 3 to 4 years. Annual rainfall in the area has ranged from a high of 40 inches to as low as 6.15 inches. Winter moisture may occur as either rain or snow and usually averages less than 1/2 inch per month.
- b. Wind velocities in this area are high and average about 5.3 miles per hour on an annual basis. The spring months are characterized by frequent wind storms with velocities in excess of 45 miles per hour which cause excessive erosion on soils not protected by a good cover of vegetation. Humidity is low and evaporation is high, usually averaging 75 inches during the period April to October inclusive.
- c. The principal growing season of native vegetation occurs during the period May through September inclusive. The frost free season averages 188 days, April 17 to October 22. Summers are hot with maximum temperatures frequently reaching 100°F or more from late May to early September. Winters are characterized by warm sunny days and cold nights, with occasional northers that may keep temperatures below freezing for several days. Temperatures of 0°F or lower have occurred in about half of the years of record, with -18°F the lowest temperature of record in the area. The percentage of sunshine is high, averaging 80 percent or more of the possible amount in most years.

3. TOPOGRAPHY AND ELEVATIONS:

This site consists of nearly level to gently sloping areas in a valley position subject to inundation from flood waters. It occurs at elevations ranging from approximately 3,000 feet to 6,500 feet.

RANGE SITE - No. 131

4. SOILS:

- a. Soils of this site are deep, alluvial loams, silt loams or clays that are characterized by the common quality of having sufficient salt content to limit the plant growth to salt tolerant species.
- b. Significant soils of this site are:

Unnamed soils.

- c. Complete soil series descriptions are available in the Soil Survey Description legends.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Alkali sacaton
Western wheatgrass
Chamize

Increasers

Inland saltgrass
Alkali muhly
Mat muhly
Poverty sumpweed
Greasewood
Burro weed (pickle weed)

Invaders

Annual weeds

- b. The vegetation of this site is confined to salt tolerant species and under continued heavy use may be dominated by grease wood and/or inland salt grass.
- c. Yield: Adequate data are lacking.
- d. Ground cover - approximately 40 percent.

6. SPECIFIC TYPE LOCATION:

Along Highway 85, approximately 5 miles north of Maxwell.

RANGE CONDITION GUIDE

131

Range Site Name Salty Bottomland (HP-1, HP-2, HP-3, CP-1, CP-2)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|---------------------|---------------------------------------|-----------|--------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Alkali sacaton | Inland saltgrass | 15 | Annual weeds |
| 3 | Western wheatgrass | Alkali muhly | 15 | |
| 3 | Chamiza | Mat muhly | 10 | |
| | | Poverty sumpweed | T | |
| | | Greasewood | 10 | |
| | | Burroweed | 5 | |

Maximum total percent 50

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 40 | 40 | 30 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Northern Desert Valleys and Mesas (ND)
Western Plateaus and Mesas (WP-1, WP-2)

TG Section II E

RANGE SITE - No. 132

1. RANGE SITE NAME: Salty Bottomland (ND, WP-1, WP-2)

2. CLIMATE:

- a. Precipitation varies from less than 10 inches in small areas to 13 inches at the higher elevations adjacent to the lower elevations of the Mountain Range Sites and Hills. Approximately one-half of the moisture occurs in the form of high intensity thunder showers over a short period of time. The high intensity rainfall period is the summer months of July, August, and September. Runoff may be excessive on the sites in the poorer range condition classes. Snowfall throughout the winter months accounts for the remaining moisture. Early and late winter moisture in the form of light rain occurs some years, but contributes little to the moisture supply.
- b. Hard blowing southwest winds are common in the early spring, melting winter snow accumulations and evaporating soil moisture before the growing season starts.
- c. The growing season is about 140 days with 110 days frost-free from June 1 to the latter part of September. Low rainfall years will result in early killing frost in the fall. Years of higher rainfall in the late fall will delay the frost resulting in a longer growing season.

3. TOPOGRAPHY AND ELEVATION:

- a. The topography of the site is flat to gently sloping from 1 percent to 5 percent along the main water courses. The site may be gullied or have an arroyo cut through the site. Runoff from the higher elevations floods the site periodically giving additional moisture. Flooding may occur from one, two, or three sides. This site usually occurs along the main water courses or areas around old lakes where salt has accumulated.
- b. The site occurs at elevations from 5,000 to 7,000 feet. Mountain sites, hills, or breaks are commonly associated sites at the higher elevations.

4. SOILS:

- a. Deep, fine-textured clay to clay loams. Water intake rate is very slow. Surface crusting and sealing are common. High runoff and deep vertical gullies are associated with this site. Water holding capacity is high, but these soils do not readily yield the water to the plants. High pH and total soluble salts make only salt-tolerant species adaptable to this site. Much of the site has been leveled, treated, and is now under irrigation.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Puerco clay, sodic affected
Ladrillo clay, sodic affected
Billings silty clay loam, saline phase

Other soils of floodplain positions that are
affected by high water tables which contain
appreciable amounts of soluble salts.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Alkali sacaton
Chamiza
Bluestem (western) wheat-
grass
Sacaton

Increasers

Saltgrass
Greasewood
Shadscale
Black sagebrush
Mat muhly

Invaders

Bermudagrass
Tamarisk

- b. The decreaseers make up 60 percent of the vegetation and the remainder is increasers.
- c. Annual herbage yield of this site based on plot clipping is _____
to _____ pounds per acre.
- d. Basal herbage covers 35 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#132

Range Site Name Salty Bottomland (ND) (WP-1) (WP-2)

| Rating | Decreasers (Count all %) | Increasers (Count no more than % shown) | Max. % By Wt. | Invaders (Count none) |
|--------|----------------------------------|-----------------------------------------------|------------------------|--------------------------|
| 1 | Sacaton | Saltgrass | 10 | Bermudagrass |
| 2 | Chamiza | Greasewood | 10 | Tamarisk |
| 2 | Bluestem (western) wheatgrass | Shadscale Black sagebrush | 10 15 | |
| 2 | Alkali sacaton | Mat muhly | 5 | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 35 | 25 | 15 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico

Land Resource Area--Southern Desert Valleys and Plains (SD-1, SD-2, SD-3)

TG Section II-E

RANGE SITE - No. 133

1. RANGE SITE NAME: Salty Bottomland (SD-1, SD-2, SD-3)

2. CLIMATE:

- a. Precipitation amounts fluctuate widely by years with a low of 3.38 inches to a high of over 20 inches. Forage fluctuation ordinarily follows this same pattern. The average annual precipitation amount for the site varies throughout the sub-resource area from slightly over 8 inches to 11 inches, approximately 50 percent of which is received in the form of torrential summer thundershowers during the summer months. Winter moisture also is quite variable. During some years snowfall accumulations for brief periods may reach 8 to 12 inches. In the southern portion of the area the ground is soon exposed after such accumulations but in the upper elevations of the Rio Grande Valley, where this site is present, snow may remain for several days with attendant cold temperatures. Although the two driest months are frequently January and February, June, with an average precipitation of .65 inches, is perhaps the most critical for seedling establishment because of the added dry effect of high daytime temperatures. April and May are also two of the lowest months from the standpoint of precipitation amounts received. During a 55 year weather record of precipitation there were 11 years when total annual amounts ranged from 3.38 inches to 6 inches; 14 years from 6 to 9 inches; 20 years from 9 to 12 inches; 3 years from 12.01 to 15 inches; 5 years from 15 to 18 inches; and 2 years from 18 to 20.8 inches.
- b. Spring winds are an important feature of climate for this site. From February through June frequent moderate windstorms and some severe storms occur when peak velocities may attain in excess of 60 miles per hour. Soil moisture is rapidly lost and top soil is subject to removal and shifting. Evaporation rates are very high throughout the year.
- c. The important growing season for this range site is during July, August, and September, but the growing season extends from March to early November in the southernmost portion of the area for a period of about 220 days. In the northern section the growing season is somewhat shorter. Temperature extremes vary from about -10°F up to 110°F in the lower Mesilla and Animas valleys.

3. TOPOGRAPHY AND ELEVATIONS:

This site occupies the broader semi-desert drainageways throughout the southern Desert Valleys Resource Area. It is commonly found as portions of the main swales or tributaries to the Rio Grande as well as in the main Rio Grande Valley itself. The site is usually a smooth even slope with gradients less than 5 percent and dominantly less than 2 percent. The site may be dissected by gullies, varying from incipient to deeply incised and thus is drained of the main runoff flow. Flooding or overflow, however, may be received from side slopes or surrounding upland sites. Elevations range from 4,000 to 5,500 feet.

4. SOILS:

a. Soils for this site are moderately deep to deep with heavy textured surfaces, usually clays and clay loams. These textures carry down into the substratum in most instances. The soil profile may be quite markedly stratified in some instances. Water intake rates are low to very low but the water-holding capacity is high. Soils are either salt or alkali affected in all cases and degree of affection is ordinarily moderate to severe.

b. Soils commonly associated with this site include the following:

Puerco clay - alkali affected
Gothard clay loam - alkali affected
Mimbres clay loam - salt affected
Imperial clay - salt affected

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Alkali sacaton
Galleta
Tobosa
Vine mesquite
Sacaton
Winterfat
Chamiza
Burro grass
Kochia
Nuttall alkali grass
Reedgrass
Western wheatgrass
Junegrass
Bottlebrush squirreltail

Increasers

Saltgrass
Samphire
Desert saltbush
Greasewood
Iodine bush
Seepweed
Wiregrass
Mat muhly
Saltsedge
Shadscale
Spirostachys

Invaders

Rabbitbrush
Tamarisk
Tornillo
Tarbush
Mesquite

RANGE SITE - No. 133

5. POTENTIAL VEGETATION: (continued)

- b. Vegetation on this site must be tolerant to moderate concentrations of salt and alkali. In top condition alkali sacaton and chamise are the important and dominating species. Such understory decreasers as vine mesquite, burro grass, squirreltail, nuttall alkali grass, and galleta or tobosa are present in quite limited amounts. Chamise is not dominant but is conspicuous in the stand. Common reedgrass (Phragmites) may occur on wetter aspects of the site. Western wheatgrass and June-grass may be important portions of the cover in the northern one-third of the resource area but completely absent in the southern two-thirds of the area.
- c. Salt grass, although regarded as an increaser, may be present in amounts up to 30 percent of the total plant composition. Salt tolerant shrubs and forbs, including samphire, desert saltbush, greasewood, iodine bush, saltbush, seepweed, and salt sedges may occupy almost 50 percent of the composition. Annual salt bushes are present during most years. Tamarisk, tornillo, and rabbitbrush occur as invaders on the site.
- d. Forage yield varies from _____ pounds per acre during drought years to _____ pounds per acre during years of high production.
- e. Density of ground cover is approximately 20 percent and the cover is interrupted by frequent bare areas due to excessive accumulations of salt or alkali.

6. SPECIFIC TYPE LOCATION:

Huning Ranch along west side of Rio Puerco; also Rio Grande Valley near Bernardo.

RANGE CONDITION GUIDE

#133

Range Site Name Salty Bottomland (SD-1, SD-2, SD-3)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|--------------------------|------------------------------------|----------------|--------------|
| | (Count all percent) | (Count no more than percent shown) | % By Wt. | (Count None) |
| 1 | Alkali sacaton | Salt grass | 30 | Rabbitbrush |
| 3 | Galleta | Samphire | T | Tamarisk |
| 2 | Tobosa | Desert saltbush | 20 | Tarnillo |
| 3 | Vine-mesquite | Greasewood | 10 | Tarbush |
| 4 | Sacaton | Iodine bush | 5 | Mesquite |
| 5 | Winterfat | Seepweed | T | |
| 3 | Chamiza | Wiregrass | 5 | |
| 3 | Burrograss | Mat muhly | 5 | |
| 5 | Kochia spp. | Salt sedges | 10 | |
| 4 | Nuttall alkali-grass | Shadscale | 5 | |
| 4 | Common reedgrass | | | |
| 5 | Western wheatgrass | | | |
| 5 | Prairie junegrass | | | |
| 5 | Bottlebrush squirreltail | | | |

Maximum total percent 70

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 20 | 15 | 10 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Central Plains and Valleys (CP-1, CP-3)
Northern Desert Valleys and Mesas (ND)
Western Plateaus and Mesas (WP-1, WP-2)

TG Section II-E

RANGE SITE - No. 134

1. RANGE SITE NAME: Salt Meadow (CP-1, CP-3, ND, WP-1, WP-2)

2. CLIMATE:

- a. The climate for the area where this site is found is quite diversified. Since moisture for plant growth is supplied principally by a water table characteristic of the site, annual amounts of precipitation received are not as critical for this site as for the drier upland sites. The area can depend, for the most part, on some winter moisture. Throughout the broad area involved winter snowfall is common and accumulations may range from a few inches up to 2 to 3 feet. Winter blizzards are common, particularly in the CP-1 sub-area, and snowdrifts become an extreme hazard. Low temperatures are common in the northern portion of the area. A low of -48°F has been recorded at Duke just on the fringe of the WP-1 sub-area. High temperatures of over 100°F are common at several weather reporting stations. The site is found in areas where extreme weather conditions are expected. Summer storms, which supply a high percentage of the annual precipitation, are ordinarily of the violent thunderstorm type, intense but of brief duration. Their frequency, during July, August, and September, the period of greatest production for warm season growers, is of great importance.
- b. Spring winds are of little importance to this site from the standpoint of erosion. They are influential indirectly on the site soil moisture-plant relationships.
- c. Average growing season for this site also varies widely from a low of about 81 days at Gavilan in WP-1 sub-area to a high of about 163 days at Shiprock. The length of growing season, inversely proportional to precipitation amounts received, is somewhat more important to this site than to others whose key plants are subject to a drier soil.

3. TOPOGRAPHY AND ELEVATIONS:

This site is flat or the topography is basin-like. In some instances the site may be located on a relatively low gradient usually less than 2 percent. The site may represent the culmination of a limited drainage pattern with no

RANGE SITE - No. 134

3. TOPOGRAPHY AND ELEVATIONS: (continued)

outlet or an inland basin. It ordinarily receives some runoff but this situation is not demanded. A distinct water table is always present. Elevation range is 5,000 feet to 7,500 feet.

4. SOILS:

a. Soils included are typically wet, moderately to severely saline or alkaline. Water tables are high for a significant period during the growing season. Surface soil texture ranges from loam to clay and usually the soils are moderately deep to deep. Salt crusts may be present on the surface of this site.

b. Soils commonly found on the site are as follows:

Unnamed saline and wet soils

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|----------------------|-------------------|-----------------|
| Nuttall alkali grass | Saltgrass | Tamarisk |
| Alkali sacaton | Samphire | Seep willow |
| Salt sedge | Salt bush | |
| Wire grass | Iodine bush | |
| Common reedgrass | Seepweed | |
| Marsh muhly | Mat muhly | |
| Meadow barley | Bull rush | |
| Aparejo grass | Wire rush | |
| Chamise | Greasewood | |
| | Spirostachys | |
| | Arrow grass | |

b. Vegetation extremely tolerant to saline, alkaline, and gypsum factors dominates this site. Nuttall alkali grass, alkali sacaton, salt sedge, wire grass, and meadow barley represent the principal decreaseers on the site, and this group makes up about 25 percent of the total plant composition. Salt grass is the dominant increaser species and may constitute 50 percent of the total plant composition. The site is characteristically typed by the presence of such indicator species as samphire, saltbush, seepweed, iodine bush, and greasewood, and these plants may combine to form approximately 25 percent or more of the composition.

5. POTENTIAL VEGETATION: (continued)

Mat muhly may be present as an understory on the drier portions of the site and chamise may also occur on the outer, drier fringe zone of the site. Salt tolerant forbs, principally Atriplex species, are an important part of the vegetative cover. Bullrush and wire rush are distinguishing components of this site, particularly in the more xeric portions.

c. Forage yield averages approximately _____ pounds per acre.

d. Ground cover is ordinarily high, averaging about one-third. Open water may be present as a site feature during a portion of the year.

6. SPECIFIC TYPE LOCATION:

Along Highway 44 approximately 2 miles northwest of San Ysidro; also the meadow at Mangas, south of Omega in the Auemado SCD.

RANGE CONDITION GUIDE

#134

Range Site Name Salt Meadow (CP-1, CP-3, ND, WP-1, WP-2)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|----------------------|---------------------------------------|-----------|--------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 4 | Nuttall alkali-grass | Salt grass | 50 | Tamarisk |
| 1 | Alkali sacaton | Samphire | 5 | Seep willow |
| 3 | Salt sedge | Salt bush | 10 | |
| 3 | Wire grass | Iodine bush | 5 | |
| 4 | Common reedgrass | Seepweed | 15 | |
| 5 | Marsh muhly | Mat muhly | 10 | |
| 5 | Meadow barley | Bull rush | 5 | |
| 5 | Aparejo grass | Wire rush | 10 | |
| 2 | Chamiza | Greasewood | 5 | |
| | | Arrowgrass | T | |

Maximum total percent 70

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 25 | 20 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico

Land Resource Area--Southern Desert Valleys and Plains (SD-3, SD-2)

TG Section II-E

RANGE SITE - No. 135

1. RANGE SITE NAME: Salt Meadow (SD-3, SD-2)

2. CLIMATE:

- a. Precipitation averages from 8 to 15 inches and ranges from an all time low of 2.1 inches to a record high of 43 inches. The greater part occurs during the months of June, July, August, and September. There are extreme fluctuations from year to year, with periodic droughts. A large part of the precipitation is derived from local high intensity storms of relatively short duration generally producing high runoff from unprotected soils. Winter precipitation averages less than half an inch per month and comes in the form of snow and/or rain.
- b. The prevailing winds are from the west and southwest and are fairly strong with winds sometimes reaching a velocity of 60 miles per hour. These high winds in March, April, and May cause extensive erosion on unprotected soils. High temperatures, fairly constant winds, and low humidity cause the average annual evaporation to range up to 107 inches from an evaporation pan.
- c. The optimum growing season of native plants coincides with the summer rains during June, July, August, and September. The growing season of the native warm season plants begins after the last frost, March 29 to April 23, and continues as moisture is available until October 15 to November 15, which are the average dates ending the frost free period. Winters are generally mild; however, there is a recorded low of -30°F . The maximum summer temperature on record is 112°F . Average annual temperatures range from 58°F to 63°F .

3. TOPOGRAPHY AND ELEVATIONS:

The topography is level to gently sloping with slopes of 0 to 3 percent. The average slope is 1 percent or less. Elevation ranges from 3,100 feet around Jal and Carlsbad areas to 4,500 feet around the San Antonio area.

4. SOILS:

- a. This mapping unit consists of a mixture of alluvial soils. They are mostly medium to coarse textured soils occupying the flood plains of the Pecos River. The water table is shallow, generally within reach

RANGE SITE - No. 135

4. SOILS: (continued)

of deep rooted plants, and in most places high enough that salt accumulates on the surface of the soil.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Mixed alluvial land

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legend or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Alkali Sacaton
Bluejoint reedgrass
Common reed
Sacaton

Increasers

Inland saltgrass
Pickleweed
Seep weed
Cattails
Sedges
Rushes
Seep willow
Screwbean mesquite

Invaders

French tamarisk
Mesquite
Bermuda grass
Annuals
Arrow weed
Burrobrush
Baccharis

- b. The decreaseers make up 70 percent of the vegetation and the remainder is made up of increasers.
- c. Annual herbage yield of this site based on plot clippings varies from 1,800 pounds per acre in favorable years to 1,000 pounds per acre in less favorable years when the site is in excellent condition. *
- d. Basal herbage covers 30 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

West 1/2 Sec. 33, north of Highway 380, T 10S, R 25E, in Chaves County.

* Based on limited clipping data and estimates.

RANGE CONDITION GUIDE

#135

Range Site Name Salt Meadow (SD-3, SD-2)

| Rating | Decreasers | Increasers | Max. % By Wt. | Invaders |
|--------|---------------------|---------------------------------------|------------------------|-----------------|
| | (Count all percent) | (Count no more than percent shown) | | (Count None) |
| 1 | Alkali Sacaton | Inland saltgrass | 30 | French Tamarisk |
| 5 | Bluejoint reedgrass | Pickle weed | 5 | Mesquite |
| 5 | Common reed | Soap weed | 5 | Annuals |
| 4 | Sacaton | Sedges | 5 | Bermudagrass |
| | | Rushes | 5 | Arrow weed |
| | | Seep willow | T | Burro brush |
| | | Cattails | T | Baccharis |
| | | Screwbean | T | |

Maximum total percent 30

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 25 | 15 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 1,800 | | | |
| Unfavorable Years | 1,000 | | | |

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UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Central Plains and Valleys (CP-1, CP-2)
Western Plateaus and Mesas (WP-1, WP-2)

TG Section II E

RANGE SITE - No. 136

1. RANGE SITE NAME: Wet Meadow (WP-1)(WP-2)(CP-1)(CP-2)

2. CLIMATE:

- a. The Wet Meadow gets most of its moisture from sub-irrigation from the higher elevations where water flows underground being forced to the surface where surface flows occur as springs or brooks. Natural precipitation is only supplementary to the moisture supply and most effective on the outer fringe area of the site. Precipitation varies from 10 to 15 inches per year. The major portion falls as rain in the months of July, August, and September. Rainfall comes generally as high intensity thunderstorms and runoff may be high if vegetative cover is poor.
- b. High winds have only limited effect on the site. The outer fringe areas of the wet site are made drier by high southwest winds during March and April.
- c. The growing season will last throughout the entire year with the cool season plants making limited growth even in the mild winter. The major forage production period is in the spring of the year when the cool season growers make the most growth before the summer hot periods when evaporation is high.

3. TOPOGRAPHY AND ELEVATION:

- a. The site is limited in area throughout the land resource areas. Topography is limited to areas with sub-irrigation, usually adjacent to the higher elevations. Often springs and permanent streams are within the area of the Wet Meadows. The Wet Meadows are gently sloping.
- b. Elevation ranges from 5,000 to 7,500 feet.

4. SOILS:

- a. Soils are medium to fine-textured, shallow to deep, with high organic matter content. Water holding capacity is high. Some cobbles and stones may be present. These soils may be underlain by gravel. This site is affected by high water table or excessive surface water or both.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Any soil affected by high water table that does not contain appreciable amounts of soluble salts

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Kentucky bluegrass
Canadian bluegrass
Foxtail barley
Bluestem (western) wheat-
grass
Tall wheatgrass
Timothy
Perennial clover
Redtop
Tufted hairgrass

Increasers

Blue grama
Mat muhly
Fringed sage
Willows
Cinguefoil
Wildrose
Wildiris
Curly dock
Poison hemlock
Wire rush
Alkali muhly
Sedge spp.

Invaders

Bermudagrass
Tamarisk

- b. The decreaseers make up 70 percent of the vegetation and the remainder is increasers.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 60 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#136

Range Site Name Wet Meadow (CP-1) (CP-2) (WP-1) (WP-2)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|--------------------|------------------------------|----------------|--------------|
| | (Count all %) | (Count no more than % shown) | % By Wt. | (Count none) |
| 2 | Kentucky bluegrass | Blue grama | 5 | Bermudagrass |
| 2 | Canadian bluegrass | Mat muhly | 5 | Tamarisk |
| 3 | Foxtail | Fringed sage | 5 | |
| 3 | Bluestem (western) | | | |
| | wheatgrass | Willows | 5 | |
| 3 | Tall wheatgrass | Cinguefoil | T | |
| 3 | Timothy | Wildrose | T | |
| 5 | Perennial clover | Wildiris | T | |
| 3 | Redtop | Curly dock | T | |
| 3 | Tufted hairgrass | Poison hemlock | T | |
| | | Sedge spp. | 5 | |
| | | Wire rush | 5 | |
| | | Alkali muhly | 5 | |

Maximum total percent 30

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 60 | 50 | 30 | X |
| Maximum Percent Density | 70 | | | |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-3)

TG Section II-E

RANGE SITE - No. 136a

1. RANGE SITE NAME: Wet Meadow (SD-3)

2. CLIMATE:

- a. Arid to semi-arid climate with an annual precipitation for this resource area averaging from 11 to 15 inches. The wettest year on record was at Ft. Sumner (41.37 inches) and the driest year was at Carlsbad (2.95 inches). Approximately 75 percent of the annual rainfall occurs from May to October inclusive. June, July, August, and September are the months of highest rainfall usually. Summer rainfall is characterized by torrential thundershowers of high intensity and short duration that produce high runoff from unprotected soils. There are extreme fluctuations in the amount of precipitation from year to year, and periodic droughts have occurred, some lasting for 4 years or longer. More years of below average rainfall can be expected than those above the average precipitation. Winter moisture may occur in the form of rain and/or snow and usually averages less than half an inch per month. When snow occurs, it melts quickly, and snow cover persisting as long as one week is unusual.
- b. Wind velocities in this area are high. February, March, April, and May are characterized by frequent wind storms with velocities in excess of 50 miles per hour, causing severe wind erosion on soils unprotected by adequate vegetation. Humidity is low and evaporation is high, averaging from 70 to 85 inches to in excess of 120 inches (from an evaporation pan).
- c. The frost free season of this sub-area ranges from about 187 days at Ft. Sumner in the northern part to 228 days at Carlsbad Caverns in the southern part. The growing season of the native warm season plants begins after the last frost, April 2 to 19 (South to North) and continues as moisture is available until the latter part of October or the first of November, ending the frost free period. Winters are characteristically warm and open, with occasional "northers" dropping the temperature to 0°F or lower for short periods of time in about one-third of the years on record. Occasional and infrequent temperatures as low as -30°F have occurred. Summers are hot with temperatures of over 105°F occurring frequently from May through September. The annual average temperature varies from 59°F at Roswell to 63°F at Carlsbad.

RANGE SITE - No. 136a

3. TOPOGRAPHY AND ELEVATIONS:

The topography is level to gently sloping below springs and usually small dikes formed on lower end of site which may form a pocket in the drainage pattern. Free water is available for plants during part of the growing season. Elevation ranges from 3,100 feet around Jal and Carlsbad areas to 4,200 feet around the Fort Sumner area.

4. SOILS:

- a. Soils are deep, fine textured, calcareous, strongly mottled and poorly drained. The water holding capacities are high. These soils occur below springs and their development has been strongly influenced by free water. These soils are mostly located at the lower edge of the orchard park terrace. Most of the springs are no longer flowing at the surface but there is evidently sub-surface flow of water through the soil. The soils occur on nearly level slopes.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Balmorhea silty clay loam

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legends or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Alkali sacaton
Vine-mesquite
Common reed
Heath aster
Sacaton
Sedges

Increasers

Inland saltgrass
Creeping muhly

Invaders

Bermuda grass
Baccharis
Draba
Annuals

The decreaseers make up 85% of the vegetation and the remainder is increasers.

- b. The potential species for this site are alkali sacaton, vine-mesquite, and sedges. Baccharis and bermuda grass are common invaders on this site.

TG Section II-E

RANGE SITE - No. 136a

5. POTENTIAL VEGETATION: (continued)

- c. Annual herbage yields based on plot clippings and weights vary from 3,500 pounds per acre in favorable years to 2,000 pounds per acre in less favorable years when the site is in excellent condition. *
- d. Basal herbage covers 35 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

SE of Roswell on old highway to railroad tracks east 3 miles and 1/2 mile south in Chaves County.

* Based on limited clipping data and estimates.

RANGE CONDITION GUIDE

#136a

Range Site Name Wet Meadow (SD-3)

| Rating | Decreasers | Increasers | Max. % By Wt. | Invaders |
|--------|---------------------|---------------------------------------|------------------------|--------------|
| | (Count all percent) | (Count no more than percent shown) | | (Count None) |
| 1 | Alkali sacaton | Inland saltgrass | 15 | Bermudagrass |
| 3 | Vine-mesquite | Creeping muhly | T | Baccharis |
| 5 | Common reed | | | Draba |
| 5 | Heath aster | | | Annuals |
| 5 | Sacaton | | | |
| 1 | Sedges | | | |

Maximum total percent 15

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 35 | 35 | 25 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 3,500 | | | |
| Unfavorable Years | 2,000 | | | |

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UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Southern Desert Valleys and Plains (SD-3)

TG Section II-E

RANGE SITE - No. 136b

1. RANGE SITE NAME: Clayey Meadow (SD-3)

2. CLIMATE:

- a. Arid to semi-arid climate with an annual precipitation for this resource area averaging from 11 to 15 inches. The wettest year on record was at Ft. Sumner (41.37 inches) and the driest year was at Carlsbad (2.95 inches). Approximately 75 percent of the annual rainfall occurs from May to October inclusive. June, July, August, and September are the months of highest rainfall usually. Summer rainfall is characterized by torrential thundershowers of high intensity and short duration that produce high runoff from unprotected soils. There are extreme fluctuations in the amount of precipitation from year to year, and periodic droughts have occurred, some lasting for 4 years or longer. More years of below average rainfall can be expected than those above the average precipitation. Winter moisture may occur in the form of rain and/or snow and usually averages less than half an inch per month. When snow occurs, it melts quickly, and snow cover persisting as long as one week is unusual.
- b. Wind velocities in this area are high. February, March, April, and May are characterized by frequent wind storms with velocities in excess of 50 miles per hour, causing severe wind erosion on soils unprotected by adequate vegetation. Humidity is low and evaporation is high, averaging from 70 to 85 inches to in excess of 120 inches (from an evaporation pan).
- c. The frost free season of this sub-area ranges from about 187 days at Ft. Sumner in the northern part to 228 days at Carlsbad Caverns in the southern part. The growing season of the native warm season plants begins after the last frost, April 2 to 19 (South to North) and continues as moisture is available until the latter part of October or the first of November ending the frost free period. Winters are characteristically warm and open, with occasional "northers" dropping the temperature to 0°F or lower for short periods of time in about one-third of the years on record. Occasional and infrequent temperatures as low as -30°F have occurred. Summers are hot with temperatures of over 105°F occurring frequently from May through September. The annual average temperature varies from 59°F at Roswell to 63°F at Carlsbad.

RANGE SITE - No. 136b

3. TOPOGRAPHY AND ELEVATION:

The topography is level and located in drainage areas along the Pecos River. Free water is available for plant use during all the growing season. Elevation ranges from 3,100 feet around Jal and Carlsbad areas to 4,200 feet around the Fort Sumner area.

4. SOILS:

- a. The soils in this unit have deep fine texture profiles. They are very slowly permeable and underlain by a water table at depths of from about 2 to 4 feet. When the soils are bare and the water table shallow, salt crusts will form on the surface due to evaporation of the ground water. These soils have fairly high water holding capacities and generally poor surface drainage. They occur on the first terrace above the Pecos River.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Arno silty clay loam, wet phase

- c. Complete soil series descriptions are available in the Soil Survey Descriptive Legends or the State Soil Series Handbook.

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Alkali sacaton
Switchgrass
Vine-mesquite

Increasers

Baccharis
Inland saltgrass
Sedges
Rushes

Invaders

French tamarisk
Mesquite
Annuals

The decreaseers make up 85 percent of the vegetation and the remainder is increasers.

- b. The potential species for this site are alkali sacaton, vine-mesquite, and Inland saltgrass. Baccharis and tamarisk are often found in large amounts.

RANGE SITE - No. 136b

5. POTENTIAL VEGETATION: (continued)

- c. Annual herbage yields based on plot clippings and weights vary from 4,500 pounds per acre in favorable years to 3,000 pounds per acre in less favorable years when the site is in excellent condition. *
- d. Basal herbage covers 40 percent or more of the ground surface.

6. SPECIFIC TYPE LOCATION:

SE of Lake Arthur on east side of Pecos River 6 miles in Chaves County.

* Based on limited clipping data and estimates.

RANGE CONDITION GUIDE

#136b

Range Site Name Clayey Meadow (SD-3)

| Rating | Decreasers | Increasers | Max. % By Wt. | Invaders |
|--------|---------------------|---------------------------------------|------------------------|-----------------|
| | (Count all percent) | (Count no more than percent shown) | | (Count None) |
| 1 | Alkali sacaton | Inland saltgrass | 15 | French Tamarisk |
| 5 | Switchgrass | Sedges | 5 | Mesquite |
| 2 | Vine-mesquite | Rushes | 5 | Annuals |
| | | Baccharis | T | |

Maximum total percent 15

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 40 | 35 | 25 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 4,500 | | | |
| Unfavorable Years | 3,000 | | | |

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E.C.S.

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Rocky Mountains (RM-1, RM-2)

TG Section II-E

RANGE SITE - No. 137

1. RANGE SITE NAME: Alpine Slopes (RM-1, RM-2)

2. CLIMATE:

- a. Climate for this site is arctic-alpine and typical of that at lower elevations in far northern latitudes. The average annual precipitation is high, ranging upward from a low of approximately 25 inches. Even at this elevation precipitation amounts are at least moderately sporadic. At somewhat lower elevations (8,000 to 9,000 feet) annual precipitation amounts range from about 13 inches to 39 inches. One of the important characteristics of the climate for this site is the wintertime accumulation of moisture in the form of snow. This constitutes the source of streamflow for the mountain area. Almost invariably the surface soil is saturated with moisture at the beginning of plant growth even though snowfall amounts have been below normal. Subsequent dry summers may seriously diminish the forage production on this site, however. In addition to the rather dependable winter moisture, the site is subjected to severe summer thunderstorm activity. These storms, occurring principally in July, August, and September, contribute only a minor part of the total precipitation received but are important in that they are responsible for erosion from summer flooding. Above 11,000 feet elevation average annual precipitation is from 30 inches to 50 inches. In the two summer months of July and August rainfall extremes of 2.43 inches and 10.6 inches have been recorded. The average for these two months lies somewhere between 5 and 8 inches.
- b. Some variations in this site are caused by exposure differences due to topography. Valleys, ridges, and various slope exposures have some differences in local climate. High velocity winds are common at all seasons.
- c. Mean annual temperature for the site is approximately 30°F. Summer maximums vary from 64°F to 76°F. Winter minimums range from 11°F to -23°F. Winter lows are higher than recorded lows for stations at considerably lower altitudes. Low temperatures are commonplace throughout the year and the growing season is extremely short. Such a short growing season, coinciding as it does with the season of use or grazing season, imposes a severe handicap on forage plants on the site. Although temperatures are low, soil freezing may be slight because of the insulation effects of the heavy snow blanket. Shallow frost heaving is noticeable in the spring and fall, however, and this is responsible for the loss of some young seedling plants.

3. TOPOGRAPHY AND ELEVATIONS:

This site is represented by all topographic features found above timberline except meadow areas, slopes in excess of 75 percent slope, and bare rock which is classed as waste. Topography of this site has been influenced in

3. TOPOGRAPHY AND ELEVATIONS: (continued)

some instances by glacial activity. Bowl-like cinques and U-shaped valleys may be present but the basin or alluvial portions are not included within this site. The topography generally varies from undulating slopes up to steep rocky cliffs. Various exposures are present on this site and the differences in climate on these exposures produce differences in length and steepness of slope. The site lies at elevations above 11,000 feet. The elevational limits of this site vary greatly with exposure.

4. SOILS:

a. Soils of this site are derived from igneous, sedimentary or metamorphic parent materials. The rock extrusions are ancient core rocks and include granites, gneisses, schists, slates, and quartzites. Faulting and folding are common geologic processes observed on the site. Soils differ because of differences in drainage, exposure, and parent materials. Generally, the soils of this site are black to dark brown with variations of brown in the subsoil. The top horizon is very thin and rarely exceeds 20 inches. Horizon development is quite distinct - more so than in the associated Alpine Meadow site. There are many gradations between mineral mantle and a true soil mantle on this site.

b. Soils commonly found on the site are as follows:

Unnamed soils.

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Mountain dandelion
Alpine fescue
Aster spp.
Dwarf clover
Kobresia
Carex dynoides
Alpine harebell
Wild yellow parsley
Golden avens
Parry clover
Alpine oreoxis
Spike trisetum

Increasers

Moss silene
Siderian sandwort
Dwarf goldenrod
Fendler sandwort
Indian paintbrush
Sky pilot polemonium
Bluegrass spp.
Rocky Mountain nailwort
Dwarf willow
Carex drummondiana
Mountain dryad
Red fruited gooseberry

Invaders

RANGE SITE - No. 137

5. POTENTIAL VEGETATION: (continued)

Decreasers

Whiproot clover
 Brandegees clover
 Alpine sagebrush
 Thurber's fescue

Increasers

Club moss
 Rose crown
 Alpine lilly
 Fairy saxifrage
 Alpine sulphur flower
 Pgymy buttercup
 Bearberry
 Whortleberry
 Fleabane
 Sedum

Invaders

- b. Probably the most important decreaser plants found on this site are Kobresia and threadleaf sedge along with dwarf and upright clovers. Important to the site but secondary to the above species are the following species: Golden avens, bluegrass, alpine oreoxis, Siberian sandwort, moss silene, alpine sagebrush, and sheep fescue. The above named plants constitute approximately three-fourths of the total plant composition. Spike trisetum is present on this site in small amounts.
- c. Bluegrass, Carex drummondiana, whortleberry, and bearberry are increaser species of some importance. Forbs, except for clovers and golden avens, are not of importance where the sod formers on this site dominate. Dwarf clover is common on the more exposed areas subject to high winds. Grass and grass-like plants are of secondary importance on portions of the site supporting a lighter total vegetal cover. Cushion forming forbs and sod formers become more prominent where cover is thin and utilization has been heavy.
- d. Total herbage production averages 363 pounds per acre with Kobresia and sedges producing 39 percent of this.
- e. Density of plant cover on this site varies from 24 percent to 89 percent with the dominant percent cover falling between 40 and 60 percent.

6. SPECIFIC TYPE LOCATION:

Slopes near Pecos Baldy, Wheeler Peak, and Redondo Mountain (Jemez Mountains).

RANGE CONDITION GUIDE

#137

Range Site Name Alpine Slopes (RM-1, RM-2)

| Rating | Decreasers | Increasers | Max. % By Wt. | Invaders |
|--------|---------------------|---------------------------------------|------------------------|--------------|
| | (Count all percent) | (Count no more than percent shown) | | (Count None) |
| 2 | Mountain dandelion | Moss silene | 5 | |
| 2 | Alpine fescue | Siberian sandwort | T | |
| 5 | Aster | Dwarf goldenrod | 5 | |
| 2 | Dwarf clover | Fendler sandwort | T | |
| 3 | Kobresia | Indian paintbrush | 5 | |
| 3 | Carex clynoides | Skypilot polemonium | T | |
| 5 | Alpine harebell | Bluegrass spp. | 20 | |
| 4 | Wild yellow parsley | Rocky Mtn. nailwort | T | |
| 5 | Golden avens | Dwarf willows | 5 | |
| 4 | Parry clover | Carex drummondiana | 10 | |
| 5 | Alpine oreoxis | Mountain dryad | 5 | |
| 3 | Spike trisetum | Red fruited gooseberry | T | |
| 5 | Whiproot clover | Club moss | T | |
| 5 | Brandegge clover | Rose crown | T | |
| 3 | Alpine sagebrush | Alpine lily | 5 | |
| 3 | Thurber's fescue | Fairy saxifrage | T | |
| | | Alpine sulphur flower | T | |
| | | Pygmy buttercup | T | |
| | | Bearberry | 5 | |
| | | Whortleberry | 5 | |
| | | Fleabane | T | |
| | | Sedum | 5 | |

Maximum total percent 50

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 45 | 40 | 30 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 363 | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Rocky Mountains (RM-1, RM-2)

TG Section II-E

RANGE SITE - No. 138

1. RANGE SITE NAME: Alpine Meadows (RM-1, RM-2)

2. CLIMATE:

- a. Climate for this site is arctic - alpine and typical of that at lower elevations in far northern latitudes. The average annual precipitation is high, ranging upward from a low of approximately 25 inches. Even at this elevation precipitation amounts are at least moderately sporadic. At somewhat lower elevations (8,000 to 9,000 feet) annual precipitation amounts range from about 13 inches to 39 inches. One of the important characteristics of the climate for this site is the wintertime accumulation of moisture in the form of snow. This constitutes the source of stream flow for the mountain area. Almost invariably the surface soil is saturated with moisture at the beginning of plant growth even though snowfall amounts have been below normal. Subsequent dry summers may seriously diminish the forage production on this site, however. In addition to the rather dependable winter moisture, the site is subjected to severe summer thunderstorm activity. These storms, occurring principally in July, August, and September, contribute only a minor part of the total precipitation received but are important in that they are responsible for erosion from summer flooding. Above 11,000 feet elevation, average annual precipitation is from 30 inches to 50 inches. In the two summer months of July and August rainfall extremes of 2.43 inches and 10.6 inches have been recorded. The average for these two months lies somewhere between 5 inches and 8 inches.
- b. Some variations in this site are caused by exposure differences due to topography. Valleys, ridges, and various slope exposures have some differences in local climate. High velocity winds are common at all seasons.
- c. Mean annual temperature for the site is approximately 30°F. Summer maximums vary from 64°F to 76°F. Winter minimums range from -11°F to -23°F. Winter lows are higher than recorded lows for stations at considerably lower altitudes. Low temperatures are commonplace throughout the year and the growing season is extremely short. Such a short growing season coinciding as it does with the season of use or grazing season, imposes a severe handicap on forage plants on the site. Although temperatures are low, soil freezing may be slight because of the insulation effects of the heavy snow blanket. Shallow frost heaving is noticeable in the spring and fall, however, and this is responsible for the loss of some young seedling plants.

3. TOPOGRAPHY AND ELEVATIONS:

This site is represented by the lower valleys, depressions or bowl-like bottoms that are found interspersed with upland or sloping sites at elevations above timberline. The site is determined by topographic position with respect to drainage, since it occupies areas where drainage is poor. Although typically the site is a depression area or basin, slopes may be flat to gently undulating. Where gradients exceed 5 percent the site is classed as Alpine Slopes. This site is usually protected from some extremes of weather by its sheltered position but snow accumulations are greater than on surrounding sloping sites. The site may be quite extensive or relatively small and is found on terrace-like areas behind rocky outcrops or below snow fields. Elevation of this site is above 11,000 feet.

4. SOILS:

- a. Soils of this site are derived from igneous, sedimentary, and metamorphic parent materials. Ancient rock cores, exposed at higher elevations and contributing to the development of soils for this site include granites, schists, gneisses, slates, and quartzites. Depositions of soils from these origins make up the soil mantle for the Alpine Meadows site. Soils are black or very dark brown mineral soils developed under poor drainage conditions. Organic material is high in the surface horizon and may include peaty or boggy soils. The subsurface may exhibit mottling. These soils have more profile variation than soils of the Alpine Slopes site. Stratification of parent materials and various degrees of wetness affect the soil profile and granular structural development is weak. Rock fragments are found in the subsoil and most soils are acidic, p^H ranging from 5 to 6. Bog soils are found where water may be impounded for a period during the year.
- b. Significant soils include the following:

Unnamed soils

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Tufted hairgrass
Kobresia
Carex elynoides
Tall chiming bells
Rock dandelion

Increasers

Shrubby cinquefoil
Wolf's currant
Bog birch
Glaucous cinquefoil
Whortleberry

Invaders

RANGE SITE - No. 138

5. POTENTIAL VEGETATION: (continued)

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|------------------------|-------------------|-----------------|
| Wallflower | Bluegrass spp. | |
| Clovers | Alpine sagebrush | |
| Thurber's fescue | Pussytoes | |
| Dandelion | Siberian sandwort | |
| Alpine timothy | Fleabane | |
| Mountain dandelion | Gentian | |
| Chuchupate | Groundsel | |
| Alpine fescue | Rush | |
| Scribner's wheatgrass | Onion | |
| Sheep fescue | Dwarf willow | |
| Mountain brome | Star gentian | |
| Porter's ligusticum | Sibbaldia | |
| Elkslip marsh marigold | | |
| Golden avens | | |

- b. Principal forage species on this site is tufted hairgrass with thread-leaf sedge, Kobresia and other sedges as important secondary species. Nebraska sedge may be found at the lower elevational fringe of this site. Various clover species are present on the site also. Where the site is more moist and boggy soils are encountered, tufted hairgrass is replaced by several different species of sedge. On the drier portions of this site, pussytoes, whortleberry, and Sibbaldia are present along with such grasses as: Smooth brome, Thurber's fescue, Alpine fescue, sheep fescue, Alpine timothy, and Scribner's wheatgrass.
- c. Onion, elkslip, marsh marigold, and dandelion are possibly the principal decreaser forbs on this site. Bluegrass species are important increasers on the site but production on this species is low. Willows and cinquefoil constitute important shrub increasers. Golden avens, fleabane, and Alpine sagebrush occur frequently on the site and are regarded as increaser species.
- d. Production varies with the percent of plant cover from 132 pounds per acre up to 1,108 pounds per acre, with an average of 626 pounds. This forage is supplied to a large extent by five species including: Tufted hairgrass, sedge, golden avens, bluegrass, and alpine sagebrush.
- e. Density of plant cover on the site ranges widely but averages about 50 percent.

6. SPECIFIC TYPE LOCATION:

Below Tschicoma Peak near Polvadera Grant, and south side of south half Lobato Grant.

RANGE CONDITION GUIDE

#138

Range Site Name Alpine Meadows (RM-1, RM-2)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|------------------------|---------------------------------------|-----------|--------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 1 | Tufted hairgrass | Shrubby cinquefoil | 10 | |
| 2 | Kobresia | Wolf's currant | 5 | |
| 3 | Threadleaf sedge | Bog birch | T | |
| 3 | Other sedges | Glaucous cinquefoil | 5 | |
| 5 | Tall chiming bells | Whortleberry | 5 | |
| 5 | Rock dandelion | Bluegrass spp. | 10 | |
| 5 | Wallflower | Alpine sagebrush | 5 | |
| 3 | Clovers | Pussytoes | 5 | |
| 3 | Thurber's fescue | Siberian sandwort | T | |
| 2 | Dandelion | Fleabane | T | |
| 2 | Alpine timothy | Gentian | 5 | |
| 3- | Mountain dandelion | Groundsel | 5 | |
| 3 | Chuchupate | Rush | 5 | |
| 4 | Alpine fescue | Wild onion | 5 | |
| 4 | Scribner wheatgrass | Dwarf willow | 5 | |
| 4 | Sheep fescue | Star gentian | 5 | |
| 5 | Mountain brome | Sibbaldia | 5 | |
| 3 | Porter ligusticum | | | |
| 3 | Elkslip marsh marigold | | | |
| 4 | Golden avens | | | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 50 | 40 | 35 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 1,108 | | | |
| Unfavorable Years | 132 | | | |

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A.V.S.

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Rocky Mountains (RM-1, RM-2)

TG Section II-E

RANGE SITE - No. 139

1. RANGE SITE NAME: Subalpine Grassland (RM-1, RM-2)

2. CLIMATE:

- a. Average annual precipitation for this site varies from about 25 inches to 30 inches and annual amounts received may fluctuate widely from year to year. At Cloudcroft (elevation 8,650 feet) annual precipitation for the year 1917 measured 15.01 inches, while in 1941 the total amount recorded was 48.1 inches. In the northern portion (RM-1) at Aspen Grove Ranch (elevation 9,500 feet) in 1934, 13.88 inches of precipitation were recorded, and in 1916, 36.48 inches were received. Winter snowfall is an important feature of the climate of this site. During some winters, starting ordinarily in December and lasting through March, sporadic winter storms may cause accumulations up to 10 feet or more on the higher portions of the site. Such accumulations, lying at the headwaters of drainages, represent the moisture reservoir for lower lying valleys for the ensuing summer season. The soil mantle of this site is, therefore, completely saturated in the spring, even though precipitation amounts may be below normal. Winter precipitation furnishes 50 percent or more of the total annual amount received. Summer precipitation occurs with the advent of cumulo-nimbus cloud formation during July through September. Convection currents cause this cloud formation during mid-day and by early afternoon violent, torrential thundershowers may occur. These storms may be brief and of varied intensity. Frequency of occurrence may largely influence the production of range forage.
- b. Evaporation is relatively low on this site and winds may be of high velocity.
- c. The mean temperature of this site ranges from well below zero to approximately 55°F. The normal mean temperatures of the six hottest consecutive weeks is 64.4°F. The frost-free period extends for three months from June 15 to September 15 and this represents the principal grazing season also. Forage plants must withstand grazing pressure and provide for storage of carbohydrates during this season. The advantage of high precipitation amounts is offset on this site by the extremely short growing season.

RANGE SITE - No. 139

3. TOPOGRAPHY AND ELEVATIONS:

This site is located in the high mountain areas of the state, below timberline and down through the spruce-fir forest. Topography is steep and rough for the most part with slopes dominantly 25 percent to 50 percent. The site is confined to the more mesic conditions in the high mountain areas with the exception of Mountain Meadows. This site may be interspersed with steep, rocky slopes. When these areas are of sufficient size and exceeding 75 percent slope they are delineated out as Waste. Slope range on this site is generally from level to 75 percent. Where gradients are steep enough to create definite exposure differences, the northern and eastern exposures constitute this site. Flatter, catchment basins, and stream channels receiving overflow are identified as Mountain Meadows. Elevation range of this site is from 8,000 to 10,000 feet.

4. SOILS:

- a. Soils of this site range from brown to dark brown in color. The whole soil profile does not effervesce with dilute hydrochloric acid. The surface is usually loamy but may be finer in texture. The subsoil is structureless to faintly granular. Parent materials from which the soil of this site is derived are igneous rocks, schists, granites, or sandstones.
- b. Soils included in this site are:

Unnamed soils

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|--------------------|-------------------|--------------------|
| Thurber's fescue | Pinegrass | Kentucky bluegrass |
| Mountain brome | Blue grama | Knotweed |
| Slender wheatgrass | Squirreltail | Groundsel |
| Mountain muhly | Hairy grama | Pussytoes |
| Marsh muhly | Ovalhead sedge | Sneezeweed |
| Red top | Meadow barley | Small rabbitbrush |
| Arizona fescue | Creeping muhly | Skunk cabbage |
| Pine dropseed | Dandelion | Locos |
| Mutton grass | Cinquefoils | Sage spp. |
| Tufted hairgrass | Iris | |
| Timothy | Yarrow | |
| Oatgrass | Lamb's quarters | |

5. POTENTIAL VEGETATION: (continued)

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|-------------------------|--------------------|-----------------|
| Monk's hood | Cane flower | |
| Clovers | Snowberry | |
| Columbia needlegrass | Elderberry | |
| Letterman's needlegrass | Viola | |
| Sweet cicely | Western wheatgrass | |
| Engelmann aster | Featherdalia | |
| Petteman spp. | Melic grass | |
| Nebraska sedge | Lupine | |
| Wild rye | Rose | |
| Sheep fescue | Oregon grape | |

- b. Dominant vegetation on this site is extremely varied. The site occurs as an intermixture with timber stands. Timber species adjoining the site include the following: Douglas fir, Engleman spruce, blue spruce, white fir, limber pine, alpine fir, bristle cone pine, and aspen. On the northern and eastern exposures there is very little understory associated with the timber species but on the western and southern exposures shade tolerant grasses, bearberry, dwarf juniper, cinquefoil, willows, and a few forbs are found as a light density understory.
- c. Within the open grassland areas mapped out as the subalpine grassland site the vegetation consists of a grass, forb, and shrub mixture. A mixture of such grasses as Thurber's fescue, mountain brome, mountain muhly, tufted hairgrass, slender wheatgrass, oatgrass, timothy, and alpine timothy, sub-alpine needlegrass, marsh muhly, spike muhly, mutton grass, various sedges, letterman needlegrasses, and redtop, make up approximately 30 percent of the plant composition. Forbs, including valerian, leafy Jacob's ladder, cow parsnip, larkspur, bluebells, monk's hood, sweet cicely, and aster may comprise about 40 percent of the plant composition on some open areas. Pentstemon and geranium are important species also on this site and together may total 35 percent of the composition. Elderberry is probably the most important species of browse on this site. Other browse species occur only as scattered trace amounts in openings where this site is present but become much more prominent in the stand of surrounding understorys.
- d. Forage production is extremely variable, ranging from 670 pounds per acre to over 4,000 pounds per acre.

5. POTENTIAL VEGETATION: (continued)

- e. Density of cover is important as a criteria to range condition, the higher the density ordinarily, the better the condition. Percent vegetative cover is approximately 50 percent and litter cover averages about 25 percent.

6. SPECIFIC TYPE LOCATION:

Slopes in vicinity of Cumbres Pass on Burns Ranch (upper Wolf Creek).
Sargent Ranch north of Chama.

RANGE CONDITION GUIDE

#139

Range Site Name Sub-alpine Grassland (RM-1, RM-2)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|------------------------|------------------------------------|-----------|--------------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 2 | Thurber's fescue | Bluegrass spp. | 5 | Kentucky bluegrass |
| 1 | Mountain brome | Pinegrass | 5 | Knotweed |
| 4 | Slender wheatgrass | Blue grama | 5 | Groundsels |
| 4 | Mountain muhly | Bottlebrush squirreltail | T | Pussytoes |
| 5 | Marsh muhly | Hairy grama | T | Sneezeweed |
| 5 | Red top | Ovalhead sedge | 5 | Small rabbitbrush |
| 4 | Arizona fescue | Meadow barley | 5 | Skunk cabbage |
| 4 | Pine dropseed | Creeping muhly | T | Locos |
| 4 | Mutton grass | Dandelion | 15 | Chokecherry |
| 2 | Tufted hairgrass | Mountain Dandelion | | Sage spp. |
| 3 | Timothy | Cinquefoil | 5 | |
| 3 | Oatgrass | Iris | 5 | |
| 2 | Monk's hood | Yarrow | T | |
| 4 | Clovers | Lamb's quarters | T | |
| 5 | Gilia spp. | Cone flower | 10 | |
| 3 | Vetch | Snowberry | 5 | |
| 4 | Spike muhly | Elderberry | 20 | |
| 2 | Bluebells | Viola | T | |
| 4 | Green bristlegrass | Western wheatgrass | 5 | |
| 4 | Peavine | Feather dalea | 5 | |
| 5 | Oniongrass | Mountain mahogany | T | |
| 2 | Cow parsnip | Mountain currant | 5 | |
| 3 | Peavine | Green gentian | T | |
| 3 | Larkspur | Thimbleberry | T | |
| 3 | Valerian | Melic grass | 5 | |
| 5 | Trisetum | Lupine | T | |
| 4 | Sheep fescue | Geranium | 5 | |
| 5 | Wild rye | Horsemint | T | |
| 3 | Columbia needlegrass | Raspberry | 5 | |
| 3 | Lettermann needlegrass | Rose | T | |
| 3 | Nebraska sege | Oregon grape | T | |
| 3 | Pentstemon spp. | Service berry | T | |
| 3 | Sweet cicely | Willows | 5 | |
| 3 | Engleman aster | | | |
| 3 | Leafy Jacob's ladder | | | |

Maximum total percent 60

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 50 | 40 | 35 | |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 4,000 | | | |
| Unfavorable Years | 670 | | | |

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UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Rocky Mountains (RM-1, RM-2)

TG Section II-E

RANGE SITE - No. 140

1. RANGE SITE NAME: Shallow Subalpine Grassland (RM-1, RM-2)

2. CLIMATE:

- a. Average annual precipitation for this site varies from about 25 inches to 30 inches and annual amounts received may fluctuate widely from year to year. At Cloudcroft (elevation 8,650 feet) annual precipitation for the year 1917 measured 15.01 inches while in 1941 the total amount recorded was 48.1 inches. In the northern portion (RM-1) at Aspen Grove Ranch (elevation 9,500 feet) in 1934, 13.88 inches of precipitation was recorded and in 1916, 36.48 inches of precipitation were received. Winter snowfall is an important feature of the climate of this site. During some winters, starting ordinarily in December and lasting through March, sporadic winter storms may cause accumulations up to 10 feet or more on the higher portions of the site. Such accumulations, lying at the headwaters of drainages, represent the moisture reservoir for lower lying valleys for the ensuing summer season. The soil mantle of this site is, therefore, completely saturated in the spring even though precipitation amounts may be below normal. Winter precipitation furnishes 50 percent or more of the total annual amount received. Summer precipitation occurs with the advent of cumulo-nimbus cloud formation during July through September. Convection currents cause this cloud formation during mid-day and by early afternoon violent, torrential thundershowers may occur. These storms may be brief and of varied intensity. Frequency of occurrence may largely influence the production of range forage.
- b. Evaporation is relatively low on this site. Wind velocities are high during all seasons.
- c. The mean temperature of this site ranges from well below zero to approximately 55°F. The normal mean temperatures of the six hottest consecutive weeks is 64.4°F. The frost-free period extends for three months from June 15 to September 15, and this represents the principal grazing season also. Forage plants must withstand grazing pressure and provide for storage of carbohydrates during this season. The advantage of high precipitation amounts is offset on this site by the extremely short growing season.

3. TOPOGRAPHY AND ELEVATIONS:

This site occurs in the higher elevations of the principal mountain areas in the state. Slopes are generally steep, dominantly about 40 percent, but ranging up to a maximum of 75 percent. Slopes steeper than this are mapped out as Waste areas. Various exposures are represented on the site and where gradients are sufficiently steep to cause site differences, the southern and western exposures, as well as the drier ridge tops, are included within this site. This site is found closely associated with the Subalpine Grassland site either as an adjacent site or intermixed with it because of exposure differences. The site is confined to the more xeric conditions existing in the spruce-fir zone and this may be determined by topographic position or soil moisture relationships. Nearly flat or benched areas, where soils are shallow, are included within this site. Elevation range is from 8,500 feet to 10,000 feet.

4. SOILS:

- a. Soils of this site are brown to dark brown in color. Soil textures in the surface are loamy, sandy, or clayey and may have a considerable amount of gravel or stones in the surface matrix. The soils of this site differ from those of Subalpine Grassland in that they are stonier and shallower and have less capacity for storing moisture. Intake rates vary from slow to rapid but are dominantly rapid. Depth of soil to parent material varies from a few inches to approximately 20 inches. Shale, basic igneous rock, cobble and gravel are usually encountered at depths less than 20 inches. Gravels and cobble may be imbedded in fine textured to medium textured material. These soils may be gentle talus slopes developed as a result of geologic erosion at higher elevations.
- b. Soils found on this site include the following:

Unnamed soils

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Mountain brome
Slender wheatgrass
Columbia needlegrass
Letterman needlegrass
Mountain muhly
Arizona fescue

Increasers

Blue grama
Pinegrass
Hairy grama
Western wheatgrass
Creeping muhly
Dandelion

Invaders

Knotweed
Sneezeweed
Small rabbitbrush
Iris
Loco
Sage spp.

5. POTENTIAL VEGETATION: (continued)

| <u>Decreasers</u> | <u>Increasesers</u> | <u>Invaders</u> |
|-------------------|---------------------|-----------------|
| Pine dropseed | Mountain dandelion | |
| Mutton grass | Squirreltail | |
| Tufted hairgrass | Yarrow | |
| Oatgrass | Pussytoes | |
| Thurber's fescue | Elderberry | |
| Trisetum | Cone flower | |
| Sheep fescue | Snowberry | |
| Clovers | Cinquefoil | |
| Larkspur | Green gentian | |
| Monk's head | Thimbleberry | |
| Bluebells | Choke cherry | |
| Vetch | Oregon grape | |
| Peavine | Service berry | |
| Oniongrass | Mountain currant | |
| Cow parsnip | Horsemint | |
| Valerian | Rose | |
| | Willows | |
| | Raspberry | |
| | Groundsels | |
| | Mountain mahogany | |

- b. The dominant vegetation of this site, when in top condition, consists of a mixture of grass, forbs, and browse with the kind of use determining the relative percents of composition. This site is intermixed with sub-alpine forest tree stands but is represented typically by the more open areas or mountain savannahs, Engleman spruce, bristle-cone pine, Douglas fir, white fir, alpine fir, limber pine, blue spruce, and aspen. This site may include open stands of these species where density of the tree cover is less than 10 percent and the principal resource is grazing use.
- c. Grasses, including mountain brome, slender wheatgrass, bearded wheatgrass, sheep fescue, barley, junegrass, oniongrass, Poa spp, Columbian needlegrass, and timothy make up about 25 percent to 35 percent of the plant composition. Forb species, including Monk's hood, bluebells, sweet cicely, dandelion, and mountain dandelion, valerian, cow parsnip, larkspur, and aster may be included in the composition up to amounts of 35 percent to 45 percent of the total plant composition. Pentstemon and geranium are two important forbs in some areas and may total 35 percent of the composition. Western yarrow, sneezeweed, iris, and herbaceous cinquefoil also are important secondary forbs. Shrubs commonly found occurring on this site, either as scattered single plants or in stands, include rose, wild currant, elderberry, chokecherry, service berry,

5. POTENTIAL VEGETATION: (continued)

snowberry, and mountain mahogany. Percent composition of shrub species does not usually exceed 20 percent.

d. Forage yield is variable and ranges from 5,000 pounds per acre to 4,000 pounds per acre.

e. Density of ground cover is variable due to the presence of rock mantle. High condition indicates an average herbaceous density of about 40 percent but may be somewhat higher where there is little exposed rock. Litter cover may average approximately 20 percent.

6. SPECIFIC TYPE LOCATION:

High mesa land below Tschicoma Peak in Jemez Mountains; also high thin soils and rocky slopes at upper Wolf Creek on Burn's Ranch, north of Chama.

RANGE CONDITION GUIDE

#140

Range Site Name Shallow Sub-alpine Grassland (RM-1, RM-2)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|-----------------------|------------------------------------|-----------|-------------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 2 | Mountain brome | Blue grama | 5 | Knotweed |
| 3 | Slender wheatgrass | Pinegrass | 5 | Sneezeweed |
| 2 | Columbia needlegrass | Hairy grama | T | Small rabbitbrush |
| 2 | Letterman needlegrass | Western wheatgrass | 5 | Iris spp. |
| 3 | Mountain muhly | Creeping muhly | T | Loco |
| 3 | Arizona fescue | Dandelion) | 10 | Sage spp. |
| 3 | Pine dropseed | Mountain dandelion) | | |
| 3 | Mutton grass | Bottlebrush squirreltail | T | |
| 2 | Tufted hairgrass | Yarrow | 5 | |
| 4 | Oatgrass | Pussytoes | 5 | |
| 3 | Thurber's fescue | Elderberry | 10 | |
| 5 | Trisetum | Cone flower | T | |
| 3 | Sheep fescue | Snowberry | 5 | |
| 5 | Clovers | Cinquefoil | 5 | |
| 4 | Larkspur | Green gentian | 5 | |
| 5 | Monk's hood | Thimbleberry | 5 | |
| 3 | Bluebells | Choke cherry | 5 | |
| 3 | Vetch | Oregon grape | 5 | |
| 3 | Peavine | Service berry | T | |
| 4 | Oniongrass | Mountain currant | 5 | |
| 4 | Cow parsnip | Rose | T | |
| 4 | Valerian | Groundsels | 5 | |
| 3 | Leafy Jacob's ladder | Lupine | 5 | |
| 2 | Pentstemon spp. | Geranium | 5 | |
| 3 | Sweet cicely | Horsemint | T | |
| 3 | Blue wild rye | Raspberry | 5 | |
| 4 | Prairie junegrass | Willows | T | |
| 5 | Wild barley | Mountain mahogany | 5 | |

Maximum total percent 75

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 40 | 35 | 30 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 5,000 | | | |
| Unfavorable Years | 4,000 | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Rocky Mountains (RM-1, RM-2)

TG Section II-E

RANGE SITE - No. 141

1. RANGE SITE NAME: Mountain Meadow (RM-1, RM-2)

2. CLIMATE:

- a. Climate is typical of Rocky Mountain area encountered at elevations existing between the woodland or pinon-juniper type and High Mountain Site where spruce-fir become an important part of the aspect. The average annual precipitation is approximately 20 inches but varies considerably from year to year from lows of around 12 inches at LaJara in 1924 to highs of approximately 31 inches in 1931 at Lee Ranch in Sandoval County. At Cloudcroft, in RM-1 sub-resource area, a low of 15.01 inches was recorded in 1917 while a high of 48.1 inches was received in 1941. This extreme fluctuation in moisture is reflected in the variation in amount of herbage produced by the site from year to year. These fluctuations are somewhat more pronounced than those noted at the High Mountain range sites where appreciable amounts of precipitation are slightly more dependable. A feature of the climate of this site is the usual winter snowfall that is received during the period December through March. Snowfall accumulations during this period are irregular as the above total yearly precipitation amounts indicate. This site is an important site from the standpoint of water yield in the overall watershed conservation program. During some years accumulations of several feet of snow are found on this site in the early spring. Summer precipitation is received during the period July through September and although the total amount for this season is less than 50 percent of the annual total, the storms are of the violent thunderstorm type of short duration but high intensity. These storms also are responsible for the frequent fires characteristic of the sites associated with this climate.
- b. Mountain winds have an indirect effect on this site from the standpoint of soil moisture losses by normal evaporation.
- c. Winter temperatures on this site may drop to well below zero, -30°F at Regina at an elevation of approximately 7,300 feet. As this site is used principally during the summer months, low temperatures and heavy snows are of little consequence from the standpoint of livestock stress ordinarily. The growing season varies, elevationally, from about 3 months to approximately 5 months. Livestock use of this site ordinarily starts about June 1 and extends through the early fall until normal shipping time.

3. TOPOGRAPHY AND ELEVATIONS:

This site is characterized by basin, swale, or mountain valley topography. The site occurs as lower lying drainage-ways, flats, or other depression areas where extra moisture accumulates as a result of runoff from surrounding higher sites. Open parks or park-like areas, having a relatively high water table are included within this site. Also included are the broader flat mountain valley areas immediately adjacent to permanent streams. Undrained basins, formerly with open water, are also included in this classification. Slopes vary from flat to gently sloping, not exceeding 3 percent. The site may be found at the heads of permanent streams and extending down for varying distances out from the drainage channels. The site is relatively small in area in comparison with surrounding sites. Elevations range from 7,000 feet to 8,500 feet.

4. SOILS:

- a. Soils on this site are quite variable, ranging from shallow to deep and from loamy surface texture to heavy or clay-like. A high water table is a characteristic of this site, particularly in the spring, and a portion of the area may have open water during this season. Springs or seeps incident to the area bring the water table to the subsoil or even to the surface in which instance the site may colloquially be called a "cienega". Soils are non-saline and have a high organic content. Common textures are loam and clay loam and in the wetter areas the soils are usually mottled rust brown and gray. Soils of this site may become drier as a result of further silting and additional drainage.
- b. Common soils of this site include the following:

Unnamed soils

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Tufted hairgrass
Nebraska sedge
Oatgrass
Junegrass
Mountain muhly
Marsh muhly
Spike muhly

Increasers

Baltic rush
Meadow barley
Blue grama
Red top
Bull rush
Pull-up muhly
Dandelion

Invaders

Kentucky bluegrass
Knotweed
Silver sagebrush
Sheep sorrel
Skunk cabbage

5. POTENTIAL VEGETATION: (continued)

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|-----------------------|--------------------|-----------------|
| Red fescue | Cinquefoil | |
| Mountain brome | Waterleaf | |
| Subalpine needlegrass | Yarrow | |
| Calamagrostis | Viola | |
| Timothy | Western wheatgrass | |
| Aster | Sedge | |
| Clovers | Pussytoes | |
| Bluebells | Groundsels | |

- b. Tufted hairgrass, Kentucky bluegrass, and red fescue are important dominants. Kentucky bluegrass, and increaser species, does not completely dominate the site but may make up about 10 percent of the composition. Common weeds present include American bistort, herbaceous cinquefoils, aster, dandelions, yarrow, groundsels, and arnica.

Sedges and rushes become conspicuous only in the wetter or swampier portions of the site. Nebraska sedge is present in small amounts.

- c. Perennial mountain grasses make up approximately 75 percent of the total plant composition. Annual grasses, annual weeds, and rushes make up a very small percentage of the composition. Perennial weeds constitute less than 10 percent and sedges make up about 15 percent of the total plant composition.
- d. Forage yield is comparable to domestic tame pastures. Three tons per acre may be produced.
- e. In top condition this site presents the appearance of a hay field. There are few breaks in the vegetation which completely covers approximately 60 percent of the ground surface.

6. SPECIFIC TYPE LOCATION:

Brazos Meadows, Penas Negras meadows in Jemez Mountains, also meadows in vicinity of Rociada.

RANGE CONDITION GUIDE

#141

Range Site Name Mountain Meadow (RM-1, RM-2)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|------------------------|------------------------------------|----------------|--------------------|
| | (Count all percent) | (Count no more than percent shown) | % By Wt. | (Count None) |
| 1 | Tufted hairgrass | Baltic rush | 5 | Kentucky bluegrass |
| 2 | Nebraska sedge | Meadow barley | 5 | Knotweed |
| 4 | Oatgrass | Blue grama | T | Silver sagebrush |
| 3 | Prairie junegrass | Red top | 20 | Sheep sorrel |
| 3 | Mountain muhly | Bullrush | 5 | Skunk cabbage |
| 4 | Marsh muhly | Pull-up muhly | 5 | |
| 3 | Spike muhly | Dandelion | T | |
| 3 | Red fescue | Cinquefoil | T | |
| 2 | Mountain brome | Waterleaf | T | |
| 3 | Sub-alpine needlegrass | Yarrow | T | |
| 3 | Timothy | Viola | T | |
| 4 | Aster | Western wheatgrass | 10 | |
| 4 | Clovers | Sedges | 5 | |
| 5 | Bluebells | Pussytoes | T | |
| 4 | Bluejoint reedgrass | Groundsels | T | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 60 | 50 | 40 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 6,000 | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Rocky Mountains (RM-1)

TG Section II E

RANGE SITE - No. 142

1. RANGE SITE NAME: Mountain Grassland (RM-1)

2. CLIMATE:

- a. Precipitation ranges from 17 inches at McGaffey to 20 inches on Mt. Taylor. Snow accumulation accounts for over half of the moisture. July, August, and early September rains account for less than half of the precipitation.
- b. April, May, and June are normally quite dry and often cold and windy. Light frost may occur in any month of the year.
- c. The growing season is about 60 to 70 days and extends from the latter part of June to the first of September. Snow pack will usually occur the middle of November and remains until the middle to the latter part of March. Light afternoon showers and rains are common throughout July and August. Very low temperatures are recorded in the mid-winter months with the ground frost line reaching three to four feet in depth.

3. TOPOGRAPHY AND ELEVATION:

- a. The slopes of the Mountain Grassland are moderate to steep with up to 30 percent slopes. The site is found on the northwest, north, and northeast facing slopes of the pine tree zone. High mountain rims and mountain valleys are included in the site. The Mountain Grassland often occurs on benches and depressed areas within the steeper surrounding slopes of the Ponderosa Pine Grassland site.
- b. The site occurs at elevations between 7,000 feet and 9,000 feet of the Ponderosa Pine Tree zone.

4. SOILS:

- a. The soils of this site are deep, medium to moderately fine-textured. The soils are high in organic matter, very friable, with high water holding capacity. Intake rates are moderate to high with good movement of air and water throughout the subsoil. Under good vegetative cover, erosion is very slight.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Metcalf muhly
Big bluestem
Pine dropseed
Mountain muhly
Little bluestem
Sideoats grama
Junegrass
Redtop
Mountain broom
Intermediate lovegrass

Increasers

Blue grama
Kentucky bluegrass
Gambel oak
Arizona fescue
Bluestem (western)
wheatgrass
Chamiza
Big sagebrush
Sedge spp.

Invaders

Rubber rabbitbrush
Snakeweed
Lupine
Pinon
Juniper

- b. The decreaseers make up 55 percent of the vegetation and the remainder is increasers.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 40 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#142

Range Site Name Mountain Grassland (RM-1)

| Rating | <u>Decreasers</u> (Count all %) | <u>Increasers</u> (Count no more than % shown) | Max. % By Wt. | <u>Invaders</u> (Count none) |
|--------|------------------------------------|------------------------------------------------------|------------------------|---------------------------------|
| 4 | Metcalf muhly | Blue grama | 20 | Rubber rabbit- |
| 3 | Big bluestem | Kentucky bluegrass | 10 | brush |
| 3 | Pine dropseed | Gambel oak | 5 | Broom snakeweed |
| 3 | Mountain muhly | Arizona fescue | 10 | Lupine |
| 4 | Little bluestem | Bluestem (western) | | Pinon |
| 3 | Sideoats grama | wheatgrass | 5 | Juniper |
| 2 | Junegrass | Chamiza | 5 | |
| 5 | Redtop | Big sagebrush | T | |
| 4 | Mountain broom | Sedge spp. | 5 | |
| 4 | Intermediate lovegrass | | | |

Maximum total percent 45

| | <u>Range Condition Classification</u> | | | |
|--------------------------------------------------|---------------------------------------|-------------|-------------|-------------|
| | <u>Excellent</u> | <u>Good</u> | <u>Fair</u> | <u>Poor</u> |
| <u>Percent by Weight of Potential Vegetation</u> | 76-100 | 51-75 | 50-26 | 0-25 |
| <u>Minimum Percent Density</u> | 40 | 30 | 20 | X |
| <u>Maximum Percent Density</u> | 45 | | | |

Approximate Air-Dry Forage Yields per Acre By:

| | <u>Range Condition Classification</u> | | | |
|--------------------------|---------------------------------------|-------------|-------------|-------------|
| | <u>Excellent</u> | <u>Good</u> | <u>Fair</u> | <u>Poor</u> |
| <u>Favorable Years</u> | | | | |
| <u>Unfavorable years</u> | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Rocky Mountains (RM-2)

TG Section II E

RANGE SITE - No. 143

1. RANGE SITE NAME: Mountain Grassland (RM-2)

2. CLIMATE:

- a. The average annual rainfall will vary from year to year with the long time average ranging from 17 to 20 inches. Considerable moisture may be expected in the mid-winter months from snowfall.
- b. Snow packs accumulate in the mid-winter months, but usually thaw early in the spring or late winter when strong southwest or west winds occur in late February, March, and early April. These winds are often quite strong and dry and will evaporate winter moisture before the spring warms up enough for plant growth.
- c. The frost-free period is about 110 days. Light frost usually occurs the latter part of May and the first part of October. The growing season is longer than the frost-free period when adequate moisture is available.

3. TOPOGRAPHY AND ELEVATION:

- a. This site occurs on slopes from level to 45 percent. Included in the site are the Mesa Rims, High Mesas, and open parks and benches which occur within the Ponderosa Pine Tree zone. At the lower elevations of the site, Pinon-Juniper Hills or breaks often occur. Although the site may be found on various slopes and soils, it is most common to the Ponderosa Pine Tree zone.
- b. Elevations range for this site from 7,500 to 9,000 feet.

4. SOILS:

- a. The soils of this site are deep, medium to moderately fine-textured. The soils are high in organic matter, very friable, with high water holding capacity. Intake rates are moderate to high with good movement of air and water throughout the subsoil. Under good vegetative cover, erosion is very slight.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

McGaffey loam

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Pine dropseed
Mountain muhly
Mountain brome
Little bluestem
Sideoats grama
Junegrass
Oatgrass
Redtop

Increasers

Kentucky bluegrass
Blue grama
Gambel oak
Arizona fescue
Bluestem (western)
wheatgrass
Muttongrass
Fringed sagebrush
Trailing daisy
Iris

Invaders

Pinon
Juniper
Lupine
Loco

- b. The decreaseers make up 60 percent of the vegetation and the remainder is increasers.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 40 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#143

Range Site Name Mountain Grassland (RM-2)

| Rating | Decreasers (Count all %) | Increasers (Count no more than % shown) | Max. % By Wt. | Invaders (Count none) |
|--------|-----------------------------|-----------------------------------------------|------------------------|--------------------------|
| 2 | Pine dropseed | Kentucky bluegrass | 20 | Pinon |
| 1 | Mountain muhly | Blue grama | 5 | Juniper |
| 3 | Mountain brome | Gambel oak | 5 | Lupine |
| 4 | Little bluestem | Arizona fescue | 20 | Loco |
| 4 | Sideoats grama | Bluestem (western) | | |
| 2 | Junegrass | wheatgrass | 5 | |
| 4 | Oatgrass | Muttongrass | T | |
| 5 | Redtop | Fringed sagebrush | T | |
| | | Trailing daisy | T | |
| | | Iris | T | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 40 | 30 | 20 | X |
| Maximum Percent Density | 45 | | | |

Approximate Air-Dry Forage Yields By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Rocky Mountains (RM-1)

TG Section II E

RANGE SITE - No. 144

1. RANGE SITE NAME: Dry Mountain Grassland (RM-1)

2. CLIMATE:

- a. Precipitation ranges from 17 inches at McGaffey to 20 inches on Mt. Taylor. Snow accumulation accounts for over half of the moisture. July, August, and early September rain accounts for less than half of the precipitation amounts.
- b. April, May, and June are normally quite dry and often cold windy months.
- c. Light frost may occur in any month of the year. The growing season is about 60 days to 70 days from the latter part of June to the first of September. Snow pack will usually occur the middle of November and not melt off until the middle to the latter part of March. Light afternoon showers and rains are common throughout the summer months of July and August. Very low temperatures are recorded in the mid-winter months with ground frost line reaching three to four feet in depth. The site is on the dry south and southwest slope of the mountain range at the lower elevations.

3. TOPOGRAPHY AND ELEVATION:

- a. The slope of the Dry Mountain Grassland is moderately steep to steep with a dominant slope of 30 percent. The slope is to the southwest, south, and southeast, making the site directly exposed to the dry south and southwest winds and more intense heat from the sun. The Dry Mountain Grassland site often occurs on depressed areas and benches within the steeper slopes of the surrounding Ponderosa Pine Tree zone.
- b. Elevation of this site is from 6,500 to 7,500 feet.

4. SOILS:

- a. The surface soils are medium to moderately fine-textured. They are deep to moderately deep to bedrock. The subsoils are usually moderately fine to fine-textured, and slow to very slowly permeable. Erosion is usually slight. Intake rates are about 1 inch per hour. Light showers fail to penetrate deep enough to be effective.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Unnamed soils

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Mountain muhly
Mountain brome grass
Junegrass
Pine dropseed
Sideoats grama
Little bluestem
Big bluestem
Spike muhly
Peavine
Vetch

Increasers

Arizona fescue
Kentucky bluegrass
Blue grama
Bluestem (western)
wheatgrass
Mountain mahogany
Sedge spp.
Iris
Yarrow
Gambel oak
Pinon
Juniper

Invaders

Rubber rabbitbrush
Broom snakeweed
Pingue

- b. The decreaseers make up 60 percent of the vegetation and the remainder is increasers. There may be 30 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 30 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#144

Range Site Name Dry Mountain Grassland (RM-1)

| Rating | Decreasers (Count all %) | Increasers (Count no more than % shown) | Max. % By Wt. | Invaders (Count none) |
|--------|-----------------------------|-----------------------------------------------|------------------------|--------------------------|
| 2 | Mountain muhly | Arizona fescue | 15 | Rubber rabbit- |
| 3 | Mountain brome grass | Kentucky bluegrass | 10 | brush |
| 4 | Junegrass | Blue grama | 20 | Broom snakeweed |
| 3 | Pine dropseed | Bluestem (western) | | Pingue |
| 1 | Sideoats grama | wheatgrass | 15 | |
| 4 | Little bluestem | Mountainmahogany | T | |
| 5 | Big bluestem | Sedge spp. | T | |
| 3 | Spike muhly | Iris | T | |
| 5 | Peavine | Yarrow | T | |
| 5 | Vetch | Gambel oak | T | |
| | | Pinon | 15 | |
| | | Juniper | 15 | |

Maximum total percent 60

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 30 | 20 | 10 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Rocky Mountains (RM-2)

TG Section II E

RANGE SITE - No. 145

1. RANGE SITE NAME: Dry Mountain Grassland (RM-2)

2. CLIMATE:

- a. The average annual rainfall will vary from year to year with the long time average ranging from 17 to 20 inches. Considerable moisture may be expected in the mid-winter months from snowfall.
- b. Snow packs accumulate in the mid-winter months, but usually thaw early in the spring or late winter when strong southwest or west winds occur in late February, March, and early April. These winds are often quite strong and dry and will evaporate winter moisture before the spring warms up enough for plant growth.
- c. The frost-free period is about 140 days. Light frost usually occurs the latter part of May and the first part of October. The growing season is much longer than the frost-free period when adequate moisture is available.

3. TOPOGRAPHY AND ELEVATION:

- a. This site occurs on slopes from level to 75 percent. Included in the site are the Mesa Rims, High Mesas, and Open Parks and Benches which occur within the Ponderosa Pine Tree zone. At the lower elevations of the site, Pinon-Juniper Hills or breaks often occur. The site occurs on various slopes and soils and is most common to the south facing slopes of the Ponderosa Pine Tree zone at lower elevations.
- b. Elevation range for this site is from 6,000 to 7,500 feet.

4. SOILS:

- a. The surface soils are usually gravelly clay loams and stony clay loams. The subsoils are similar in gravel and stone content. This site includes well-developed soils with a textural B₂ and weakly developed soils without B horizons. Erosion is slight. Very little runoff occurs. The presence of gravel and stone favors deeper penetration of moisture than nongravelly, nonstony soils of similar texture. The soils derived from both basalt and rhyolite are noncalcareous in both the surface and B₂ layer. The soils derived from limestone are calcareous from the surface down.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Unnamed soils

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Mountain muhly
Bromegrass spp.
Junegrass
Pine dropseed
Sideoats grama
Little bluestem
Big bluestem
Spike muhly
Peavine
Vetch
Ponderosa pine

Increasers

Arizona fescue
Kentucky bluegrass
Blue grama
Bluestem (western)
wheatgrass
Mountainmahogany
Rubber rabbitbrush
Sedge spp.
Iris
Yarrow
Gambel oak
Pinon
Juniper

Invaders

Broom snakeweed
Loco
Pingue
Lupine

- b. The decreaseers make up 60 percent of the vegetation and the remainder is increasers. There may be 30 percent woody vegetation in excellent condition.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 30 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#145

Range Site Name Dry Mountain Grassland (RM-2)

| Rating | Decreasers (Count all %) | Increasers (Count no more than % shown) | Max. % By Wt. | Invaders (Count none) |
|--------|------------------------------|-----------------------------------------------|------------------------|--------------------------|
| 2 | Mountain muhly | Arizona fescue | 20 | Broom snakeweed |
| 2 | Bromegrass spp. | Kentucky bluegrass | 20 | Loco |
| 3 | Junegrass | Blue grama | 10 | Pingue |
| 2 | Pine dropseed | Bluestem (western) wheat- | | Lupine |
| 3 | Sideoats grama | grass | 5 | |
| 4 | Little bluestem | Mountain mahogany | T | |
| 5 | Big bluestem | Rubber rabbitbrush | T | |
| 3 | Spike muhly | Sedge Spp. | T | |
| 5 | Peavine | Iris | T | |
| 5 | Vetch | Yarrow | T | |
| 4 | Ponderosa pine | Gambel oak | 5 | |
| | | Pinon | 15 | |
| | | Juniper | 15 | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum percent density | 30 | 20 | 10 | X |

Approximate Air-Dry Forage Yields By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Rocky Mountains (RM-1)

TG Section II E

RANGE SITE - No. 146

1. RANGE SITE NAME: Pine Grassland (RM-1)

2. CLIMATE:

- a. Precipitation ranges from 17 inches at McGaffey to 20 inches on Mt. Taylor. Snow accumulation accounts for over half of the moisture. July, August, and early September rain accounts for less than half of precipitation amounts.
- b. April, May, and June are normally quite dry and often cold, windy months.
- c. Light frost may occur in any month of the year. The growing season is about 60 to 70 days from the latter part of June to the first of September. Snow pack will usually occur the middle of November and not melt off until the middle to the latter part of March. Light afternoon showers and rains are common throughout the summer months of July and August. Very low temperatures are recorded in the mid-winter months with ground frost line reaching three to four feet in depth.

3. TOPOGRAPHY AND ELEVATION:

- a. The slope of the Pine Grassland is moderately steep to steep, with a dominant slope of 30 percent. This includes all exposures. The site is recognized by the Ponderosa Pine Tree canopy, with an under-story of Mountain Bunch Grasses and Forbes. At the lower elevations, the site merges into the hills of Pinon-Juniper. At the higher elevations, the site is limited by Pine Woodland suitability groups on which the site index exceeds 45 and the timber stand develops sufficient size and density to be managed for commercial timber production.
- b. The site occurs at elevations ranging from about 7,000 feet on the north exposures to about 9,000 feet on south facing slopes.

4. SOILS:

- a. The soils of the Pine Grassland range site are deep to moderately deep and are medium to moderately fine-textured. The water intake rates are rapid. Organic matter content is high with high water holding capacity. Air and water move freely through the subsoil. The surface soil is very friable and may contain a mulch a few inches thick. Under good management, soil erosion is very slight.
- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Unnamed soils

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Letterman's needlegrass
Mountain muhly
Pine dropseed
Mountain broom
Little bluestem
Sideoats grama
Junegrass
Oatgrass
Redtop
Ponderosa pine
N. M. feathergrass

Increasers

Blue grama
Kentucky bluegrass
Gambel oak
Muttongrass
Mountainmahogany
Arizona fescue
Bluestem (western) wheat-
grass
Ponderosa pine
Sedge spp.

Invaders

Pinon
Juniper
Chamiza
Rubber rabbit-
brush
Broom snakeweed
Lupine
Annuals
Pingue
Threadleaf
groundsel

- b. The decreaseers make up 55 percent of the vegetation and the remainder is increasers.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 40 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#146

Range Site Name Pine Grassland (RM-1)

| Rating | Decreasers (Count all %) | Increasers (Count no more than % shown) | Max. % | Invaders |
|--------|-----------------------------|--------------------------------------------|-----------|-----------------|
| | | | By Wt. | (Count None) |
| 4 | Letterman's needlegrass | Blue grama | 5 | Pinon |
| 2 | Mountain muhly | Kentucky bluegrass | 20 | Juniper |
| 2 | Pine dropseed | Gambel oak | 10 | Chamiza |
| 3 | Mountain broom | Muttongrass | 5 | Rubber rabbit- |
| 4 | Little bluestem | Mountainmahogany | 5 | brush |
| 3 | Sideoats grama | Arizona fescue | 10 | Broom snakeweed |
| 2 | Junegrass | Bluestem (western) wheat- | | Lupine |
| 3 | Oatgrass | grass | 5 | Annuals |
| 5 | Redtop | Ponderosa pine | 20 | Pingue |
| T | Ponderosa pine | Sedge spp. | 5 | Threadleaf |
| 5 | N. M. feathergrass | | | groundsel |

Maximum total percent 45

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 40 | 30 | 20 | X |
| Maximum Percent Density | 45 | | | |

Approximate Air-Dry Forage Yields By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Rocky Mountains (RM-2)

TG Section II E

RANGE SITE- No. 147

1. RANGE SITE NAME: Pine Grassland (RM-2)

2. CLIMATE:

- a. The average annual rainfall will vary from year to year with the long time average ranging from 17 to 20 inches. Considerable moisture may be expected in the mid-winter months from snowfall.
- b. Snow packs accumulate in the mid-winter months, but usually thaw early in the spring or late winter when strong southwesterly or westerly winds occur in late February, March, and early April. These winds are often quite strong and dry and will evaporate winter moisture before the spring warms up enough for plant growth.
- c. The frost-free period is about 110 days. Light frost usually occurs the latter part of May and the first part of October. The growing season is longer than the frost-free period when adequate moisture is available. The north facing slopes are much colder and accumulations of available moisture are more than the south facing slopes.

3. TOPOGRAPHY AND ELEVATION:

- a. The slope of the Pine Grassland includes moderately steep to steep slopes up to 75 percent. The site is found on all exposures, quite often on a series of large ridges and deep mountain valleys. The site is distinguished by the stand of Ponderosa pine trees and an understory of Mountain bunch grasses. At the higher elevations, the site is limited by Pine Woodland suitability groups on which the site index exceeds 45 and the timber stand develops sufficient size and density to be managed for commercial timber production. At the lower range, the site merges with the pinon-juniper covered hills or breaks site. The site is often broken by sheer rock escarpments and projecting stone outcrops.
- b. The site occurs at elevations ranging from 7,000 feet to 9,000 feet on the north facing slopes to 7,500 feet to 9,500 feet on the south facing slopes.

4. SOILS:

- a. Surface soils are stony and gravelly sandy loams, loams, and clay loams. Depths vary from very shallow to deep. Most subsoils are gravelly or stony, but included are well developed soils with clay loam B₂ subsoils. Both Gray Wooded and Western Brown forest soils occur. Except for the soils derived from limestone, the surface foot is generally noncalcareous. Little surface runoff occurs, but subsurface flow may occur from heavy storms.

- b. The significant soils in this site may include one or more of the following:

SERIES, TYPES, AND PHASES

Unnamed soils

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Mountain muhly
Junegrass
Mountain brome
Sideoats grama
Pine dropseed
Little bluestem
Oatgrass
N. M. needlegrass
Bluestem (western)
wheatgrass
Vetch
Peavine
Cliffrose
Spike muhly
Letterman's needlegrass
Big bluestem
Ponderosa pine

Increasers

Arizona fescue
Spike muhly
Kentucky bluegrass
Blue grama
Canadian wildryegrass
Creeping muhly
Sleepygrass
Mountainmahogany
Gambel oak
Skunkbush sumac
Yarrow
Iris

Invaders

Pinon
Juniper
Chamiza
Rubber rabbitbrush
Snakeweed
Pingue

- b. The decreaseers make up 55 percent of the vegetation and the remainder is increasers.
- c. Annual herbage yield of this site based on plot clipping is _____ to _____ pounds per acre.
- d. Basal herbage covers 40 percent of the ground.

6. SPECIFIC TYPE LOCATION:

RANGE CONDITION GUIDE

#147

Range Site Name Pine Grassland (RM-2)

| Rating | Decreasers (Count all %) | Increasers (Count no more than % shown) | Max. % By Wt. | Invaders (Count none) |
|--------|-----------------------------|-----------------------------------------------|------------------------|--------------------------|
| 2 | Mountain muhly | Arizona fescue | 10 | Pinon |
| 2 | Junegrass | Spike muhly | 10 | Juniper |
| 3 | Mountain brome | Kentucky bluegrass | 10 | Chamiza |
| 4 | Sideoats grama | Blue grama | 5 | Rubber |
| 2 | Pine dropseed | Canadian wildryegrass | 5 | rabbitbrush |
| 5 | Little bluestem | Creeping muhly | 5 | Broom snake- |
| 5 | Oatgrass | Sleepygrass | 5 | weed |
| 5 | Bluestem (western) | Gambel oak | 5 | Pingue |
| | wheatgrass | Mountainmahogany | 5 | |
| 5 | N.M. needlegrass | Skunkbush sumac | T | |
| 5 | Vetch | Yarrow | 5 | |
| 5 | Peavine | Iris | T | |
| 5 | Cliffrose | | | |
| 4 | Spike muhly | | | |
| 5 | Letterman's needlegrass | | | |
| 5 | Big bluestem | | | |
| 1 | Ponderosa pine | | | |

Maximum total percent 45

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 40 | 30 | 20 | X |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Rocky Mountains (RM-1)

TG Section II-E

RANGE SITE - No. 148

1. RANGE SITE NAME: Mountain Shale (RM-1)

2. CLIMATE:

- a. Annual precipitation varies from 20 to 30 inches for this site and of this amount approximately 30 percent occurs in the form of winter snow. Variations in both winter and summer precipitation may be quite extreme, ranging from rather open, dry winters to winters during which several feet of snow is accumulated over an extremely moist or saturated forest floor. Summer thundershower activity, which is greatest during July, August, and September, although somewhat more dependable than at sites of lower elevation, may also be very sporadic. As examples of extreme fluctuations in precipitation yield by years, records show 10.02 inches received at Regina in 1950 as compared to 29.07 inches received in 1941. Records for Santa Fe Canyon show somewhat less variation with 15.83 inches in 1912 and 21.24 inches in 1911.
- b. Mountain winds have an effect on the growing conditions within this site in their effect of increasing moisture loss in litter and the surface soil horizon. Availability of moisture for plant growth is more of a limiting factor on this site than it is on sites at higher elevations.
- c. Forage production is dependent upon both winter and summer moisture and therefore yields of forage fluctuate directly with amount of precipitation. The site is a critical one also from the standpoint of watershed problems. It constitutes one of the storage facilities for winter moisture that will later be converted to stream flow for domestic and irrigation use. The mean temperature varies from well below zero to about 60°F and the frost-free period lasts for about 4 months, extending from June 1 to October 1. Some cool season growers begin growth almost with snow recession and also enjoy a brief growing period in the fall. Evaporation rates vary with elevation within the site. Rates are generally low at the higher elevations and increase at lower elevations particularly on the southern and western exposures. Since the growing season and the period of use on this site practically coincide, the key forage plants are placed at a considerable disadvantage. While subject to use, they must produce seed and store reserve carbohydrates and accomplish this in a relatively short period.

3. TOPOGRAPHY AND ELEVATIONS:

This site is located in mountainous terrain. Slopes are dominantly moderately steep to steep with gradients varying from 10 percent up to 75 percent where steeper slopes make grazing use by domestic livestock impossible. Topography varies from relatively uniform slopes of considerable length to short, steep, and choppy terrain. Intervening valleys mapped as Mountain Valley or Valley Shale lend variety to the landscape where this site is described. Mountainous topography in the Ponderosa pine zone and having shale soils is considered as belonging to this site even if separated from the main mountain chains. This site generally occupies the northern and eastern exposures. The lower slopes of the RM-1 sub-resource area of the principal mountainous areas in the state and located above the pinon-juniper constitute this site where the soils are derived from shale parent material.

4. SOILS:

a. Soils of this site have clay, silty clay, silty clay loam, and clay loam surface textures. Soils are dark to gray colored, noncalcareous and are derived from shale parent materials. The subsoil is typically a compact clay which restricts root penetration. These subsoils are usually very slowly permeable. The soils of this site on the steeper slopes are conducive to the development of geologic slides when completely saturated. Depth to shale usually varies from 10 inches to 30 inches. When in a dry condition these soils require as much as 2.5 inches of moisture to wet a foot of soil. For this reason light showers fail to penetrate deep enough to be used for plant growth. Soils found on this site include the following:

Unnamed soils.

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Junegrass
Western wheatgrass
Slender wheatgrass
Blue grama
Indian ricegrass
Wild rye
Winterfat
Needle & thread grass
Pine dropseed

Increasers

Sleepy grass
Galleta
Three-awn
Dryland sedge
Turber's muhly
Big sagebrush
Silver sagebrush
Black sagebrush
Shrubby buckwheat

Invaders

Ring grass
Little rabbitbrush
Pingue
Pussytoes

RANGE SITE - No. 148

5. POTENTIAL VEGETATION: (continued)

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|----------------------|-------------------|-----------------|
| Mountain brome | Oakbrush | |
| Little bluestem | Yarrow | |
| Mutton grass | Trailing fleabane | |
| Mountain muhly | Rose | |
| Arizona fescue | Estafiata | |
| Spike muhly | Currant | |
| Sideoats grama | Service berry | |
| Alkali sacaton | Snakeweed | |
| Geranium | Cinquefoil | |
| Littleseed ricegrass | Loco | |
| Bitterbrush | Lupine | |
| Clovers | Dandelion | |
| Mountain mahogany | Chokecherry | |
| Vetch | Snowberry | |
| Peavine | Groundsel | |

- b. The vegetation of this site is comprised of a mixture of grass, forbs, and shrubs whose relative composition percent is dependent upon climatic and grazing factors. Important bunchgrasses include the following: Slender wheatgrass, mountain brome, Indian ricegrass, needle and thread grass, blue grama, Arizona fescue, mountain muhly, alkali sacaton, junegrass, pine dropseed, and bluegrass species. These species constitute the bulk of the forage furnished by this site.
- c. In top condition perennial mountain bunchgrasses dominate the site with a percentage composition of around 60 percent. Shrub species are subdominant, displaying a percentage composition of about 25 percent with perennial forbs making up approximately 10 percent to 15 percent of the vegetal complex. Oakbrush is the dominant shrub on this site and may occupy 15 percent of the total plant composition. Estafiata, a half shrub species, sage species, service berry, choke cherry, shrubby cinquefoil, snowberry, and shrubby buckwheat are secondary shrub species of some importance.
- d. Forage yield on this site varies from _____ pounds per acre during drought years to _____ pounds per acre for years of above normal precipitation. Scattered light, open stands of scrubby ponderosa pine may give this site a savannah aspect. Pinon-juniper stands are encountered at the lower elevational limits of the site.

RANGE SITE - No. 148

5. POTENTIAL VEGETATION: (continued)

- e. Density of vegetation is fairly uniform but may be interrupted to some extent by the presence of colonies of browse species. A total percentage ground cover of 40 percent can be expected.

6. SPECIFIC TYPE LOCATION:

Northern and eastern exposures near Vagueros; also Chama Land and Cattle Company in vicinity of Chama.

RANGE CONDITION GUIDE

#148

Range Site Name Mountain Shale (RM-1)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|----------------------|------------------------------------|-----------|--------------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 3 | Prairie junegrass | Sleepy grass | T | Ring muhly |
| 3 | Western wheatgrass | Galleta | 5 | Little rabbitbrush |
| 1 | Slender wheatgrass | Three-awns | T | Pinge |
| 2 | Blue grama | Dryland sedge | 5 | Pussytoes |
| 2 | Indian ricegrass | Thurber's muhly | T | |
| 4 | Wild rye | Big sagebrush | T | |
| 4 | Winterfat | Silver sagebrush | 5 | |
| 3 | Needle and thread | Black sagebrush | 5 | |
| 4 | Pine dropseed | Shrubby buckwheat | 5 | |
| 2 | Mountain brome | Oakbrush | 15 | |
| 4 | Little bluestem | Yarrow | T | |
| 4 | Mutton grass | Trailing fleabane | T | |
| 2 | Mountain muhly | Rose | T | |
| 3 | Arizona fescue | Fringed sagebrush | 5 | |
| 4 | Spike muhly | Currant | T | |
| 3 | Sideoats grama | Service berry | 5 | |
| 3 | Alkali sacaton | Snakeweed | T | |
| 4 | Geranium | Cinquefoil | 5 | |
| 5 | Littleseed ricegrass | Loco | T | |
| 5 | Pinon ricegrass | Lupine | T | |
| 5 | Bitterbrush | Dandelion | T | |
| 4 | Clovers | Choke cherry | 5 | |
| 4 | Mountain mahogany | Snowberry | 5 | |
| 3 | Dropseeds | Groundsel | T | |
| 5 | Vetch | | | |
| 5 | Peavine | | | |

Maximum total percent 35

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 40 | 35 | 25 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Rocky Mountains (RM-1)

TG Section II-E

RANGE SITE - No. 149

1. RANGE SITE NAME: Dry Mountain Shale (RM-1)

2. CLIMATE:

- a. Climate is typical of Rocky Mountain area encountered at elevations existing between the woodland or Pinon-juniper type and High Mountain Site where Spruce-fir become an important part of the aspect. The average annual precipitation is approximately 20 inches but varies considerably from year to year from lows of around 12 inches at LaJara in 1924 to highs of approximately 31 inches in 1931 at Lee Ranch in Sandoval County. At Cloudcroft, in RM-2 sub-resource area, a low of 15.01 inches was recorded in 1917 while a high of 48.1 inches was received in 1941. This extreme fluctuation in moisture is reflected in the variation in amount of herbage produced by the site from year to year. These fluctuations are somewhat more pronounced than those noted at the High Mountain range sites where appreciable amounts of precipitation are slightly more dependable. A feature of the climate of this site is the usual winter snowfall that is received during the period December through March. Snowfall accumulations during this period are irregular as the above total yearly precipitation amounts indicate. This site is an important site from the standpoint of water yield in the overall watershed conservation program. During some years accumulations of several feet of snow are found on this site in the early spring. Summer precipitation is received during the period July through September and although the total amount for this season amounts to less than 50 percent of the annual total, the storms are of the violent thunderstorm type of short duration but high intensity. These storms also are responsible for the frequent fires characteristic of the sites associated with this climate.
- b. Mountain winds have an indirect effect on this site from the standpoint of soil moisture losses by normal evaporation. Since exposure defines the separation of this site from Mountain Shale, this site must be considered drier due to its western and southern aspect and also since it is subjected to somewhat more wind action. Prevailing winds in the spring are southwesterly.
- c. Winter temperatures on this site may drop to well below zero -30°F. at Regina at an elevation of approximately 7,300 feet. As this site is used principally during the summer months low temperatures and heavy snows are

RANGE SITE - No. 149

2. CLIMATE: (continued)

of little consequence from the standpoint of livestock stress ordinarily. The growing season varies, elevationally, from about 3 months to approximately 5 months. Livestock use of this site ordinarily starts about June 1 and extends through the early fall until normal shipping time.

3. TOPOGRAPHY AND ELEVATIONS:

This site is found on the southern and western exposures of higher foothill and mountain topography of the RM-1 sub-resource area. Slopes average about 30 percent and are more gentle and less steep in general than the Mountain Shale (RM-1) site. Gradients vary from 10 percent to approximately 60 percent. The site is found associated with Mountain Shale and Valley Shale sites with sharp exposure and topographic differences determining their identification. Foothill country, above the pinon-juniper association, generally is made up of these sites where shales predominate. Intermixtures of these sites and Mountain Slopes site also are found. Dry ridge tops, even where relatively flat mesas occur and shallow soils are present, are classified within this range site. Elevations range from 7,000 to 9,000 feet.

4. SOILS:

a. Soils of this site are very similar to those of the Mountain Shale (RM-1) site. They have clay, clay loam, silty clay, and clay surface textures and vary greatly in depth. Soils are dark to gray colored, noncalcareous and are derived from shale parent materials. Mancos and Morrison formations are commonly associated with this site. The subsoil is typically a compact clay which restricts root growth. These subsoils are usually very slowly permeable. Because these soils are somewhat drier than those of the Mountain Shale site, earth slides on the steeper slopes are less frequent. Depth of raw shale varies from 10 inches to 30 inches. As much as 2.5 inches of moisture is required to wet a foot of soil when this site is at its driest period and for this reason light showers fail to penetrate deep enough to be of much use for plant growth.

b. Soils found on this site include the following:

Unnamed soils.

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Slender wheatgrass
Blue grama

Increasers

Oakbrush
Sleepy grass

Invaders

Little rabbitbrush
Ring grass

RANGE SITE - No. 149

5. POTENTIAL VEGETATION: (continued)

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|-----------------------|-------------------|-----------------|
| Western wheatgrass | Galleta | Pussytoes |
| Indian ricegrass | Dryland sedge | Pingue |
| Needle & thread grass | Thurber's muhly | |
| Pine dropseed | Big sagebrush | |
| Mountain brome | Silver sagebrush | |
| Little bluestem | Three-awn | |
| Mutton grass | Shrubby buckwheat | |
| Mountain muhly | Estafiata | |
| Arizona fescue | Dandelion | |
| Spike muhly | Cinquefoil | |
| Sideoats grama | Black sage | |
| Alkali sacaton | Currant | |
| Bitterbrush | Snowberry | |
| Mountain mahogany | Rose | |
| Dropseeds | Trailing fleabane | |
| Vetch | Yarrow | |
| Peavine | Snakeweed | |
| Winterfat | Loco | |
| Junegrass | Lupine | |
| Wild rye | Groundsel | |
| | Choke cherry | |

- b. This site is principally characterized by open grassland with scattered individuals or colonies of shrubs and an intermixture of perennial and annual forbs. Ponderosa pine stands in groups or as individual trees occur with this site, giving it a savannah-like appearance. Portions of the site may be temporarily almost completely dominated by oakbrush. Relative percent composition of grass, forbs, and shrubs varies with climatic and other ecologic factors. Fire may alter the composition periodically.
- c. Perennial bunchgrass species including slender wheatgrass, mountain bromes, Indian ricegrass, needle and thread grass, Arizona fescue, mountain muhly, alkali sacaton, pine dropseed, junegrass, dropseeds, and bluegrass species make up about 35 percent of the plant composition. Blue grama and western wheatgrass are important secondary grasses that may comprise another 15 percent of the composition. Sleepy grass, galleta, three-awn, and other less palatable increaser grasses do not exceed 10 percent in the aggregate. Oakbrush may occupy one-fourth of the total plant composition on this site but all shrubs do not combine to make up more than 50 percent of the cover. Important shrubs in addition to oakbrush are big sage, black sage, rabbitbrush, bitter brush, mountain

5. POTENTIAL VEGETATION: (continued)

mahogany, snowberry, and rose. Half shrubs such as little rabbitbrush and snakeweed are of limited importance on this site in high condition. Forbs that may total 10 percent to 15 percent of the composition include yarrow, trailing fleabane, groundsels, lupine, loco, herbaceous cinquefoil, dandelion, and pussytoes.

d. Forage yield varies from _____ pounds per acre in dry years to _____ pounds per acre in years of above normal moisture.

e. Density of ground cover is approximately 35 percent.

6. SPECIFIC TYPE LOCATION:

Southern and western exposures near Dulce; also Burns and Sargent Ranches near Chama.

RANGE CONDITION GUIDE

#149

Range Site Name Dry Mountain Shale (RM-1)

| Rating | Decreasers | Increasers | Max. % By Wt. | Invaders |
|--------|---------------------|---------------------------------------|------------------------|--------------------|
| | (Count all percent) | (Count no more than percent shown) | | (Count None) |
| 1 | Slender wheatgrass | Oakbrush | 25 | Ring muhly |
| 2 | Blue grama | Sleepy grass | 5 | Little rabbitbrush |
| 2 | Western wheatgrass | Galleta | 5 | Pussytoes |
| 1 | Indian ricegrass | Dryland sedge | 5 | Pingue |
| 2 | Needle and thread | Thurber's muhly | T | |
| 4 | Pine dropseed | Big sagebrush | 5 | |
| 3 | Mountain brome | Silver sagebrush | 5 | |
| 3 | Arizona fescue | Three-awns | 5 | |
| 4 | Spike muhly | Shrubby buckwheat | 5 | |
| 4 | Sideoats grama | Fringed sagebrush | 5 | |
| 2 | Alkali sacaton | Dandelion | T | |
| 5 | Bitterbrush | Cinquefoil | 5 | |
| 4 | Mountain mahogany | Black sagebrush | 5 | |
| 3 | Dropseeds | Currant | T | |
| 5 | Vetch | Snowberry | 5 | |
| 5 | Peavine | Rose | T | |
| 4 | Winterfat | Trailing fleabane | T | |
| 3 | Prairie junegrass | Yarrow | T | |
| 3 | Wild rye | Snakeweed | T | |
| 3 | Little bluestem | Loco | T | |
| 3 | Mutton grass | Lupine | T | |
| 2 | Mountain muhly | Groundsel | T | |
| | | Choke cherry | 5 | |

Maximum total percent 45

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 35 | 30 | 25 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Rocky Mountains (RM-1)

TG Section II-E

RANGE SITE - No. 150

1. RANGE SITE NAME: Valley Shale (RM-1)

2. CLIMATE:

- a. Annual precipitation varies from 20 to 30 inches for this site and of this amount approximately 30 percent occurs in the form of winter snow. Variations in both winter and summer precipitation may be quite extreme, ranging from rather open, dry winters to winters during which several feet of snow is accumulated over an extremely moist or saturated forest floor. Summer thundershower activity, which is greatest during July, August, and September, although somewhat more dependable than at sites of lower elevation, may also be very sporadic. As examples of extreme fluctuations in precipitation yield by years, records show 10.02 inches received at Regina in 1950 as compared to 29.07 inches received in 1941. Records for Santa Fe Canyon show somewhat less variation with 15.83 inches in 1912 and 21.24 inches in 1911.
- b. Mountain winds have an effect on the growing conditions within this site in their effect of increasing moisture loss in litter and the surface soil horizon. Availability of moisture for plant growth is more of a limiting factor on this site than it is on sites at higher elevations.
- c. Forage production is dependent upon both winter and summer moisture and therefore yields of forage fluctuate directly with amount of precipitation. The site is a critical one also from the standpoint of watershed problems. It constitutes one of the storage facilities for winter moisture that will later be converted to stream flow for domestic and irrigation use. The mean temperature varies from well below zero to about 60°F and the frost-free period lasts for about 4 months extending from June 1 to October 1. Some cool season growers begin growth almost with snow recession and also enjoy a brief growing period in the fall. Evaporation rates vary with elevation within the site. Rates are generally low at the higher elevations and increase at lower elevations particularly on the southern and western exposures. Since the growing season and the period of use on this site practically coincide, the key forage plants are placed at a considerable disadvantage. While subject to use, they must produce seed and store reserve carbohydrates and accomplish this in a relatively short period.

RANGE SITE - No. 150

3. TOPOGRAPHY AND ELEVATIONS:

Topography is almost flat to gently sloping gradients in a bottomland position in the mountains. The site is typically located in the drainages whose origins are in the High Mountain sites. The upper reaches of these drainageways are included in the higher mountain sites but at lower elevations, where the pine is encountered, they become larger in area and slopes are reduced. These lower valleys and side slopes up to 10 percent gradient are included in this site. Adjacent to permanent or ephemeral streams in these valleys where the drainage is poor the site blends in with and may become Mountain Meadows. The site receives runoff either from the main water course or from adjacent side slopes or Mountain Shale or Dry Mountain Shale sites and is in the same topographic position as Mountain Valley. Elevation range is 7,000 feet to 9,000 feet.

4. SOILS:

a. Soils of this site are very similar to those of the Mountain Shale site. They differ in that they are deep or moderately deep, having been built up as alluvial deposits from adjacent steeper shale parent materials. Surface textures are clay, silty clay, and clay loam while subsoil textures are usually clay. Subsoil permeability is very low and intake rates at the surface are also low. Rapid runoff and water erosion are serious problems on this site. These soils, when dry, require as much as 2.5 inches of water to wet one foot of soil thus, in this condition, light amounts of precipitation are usually ineffective from the standpoint of plant growth.

b. The following soils are found on this site:

Unnamed soils.

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Mountain muhly
Pine dropseed
Arizona fescue
Mountain brome
Slender wheatgrass
Western wheatgrass
Blue grama
Vine mesquite

Increasers

Sleepy grass
Three-awn
Mat muhly
Dryland sedge
Ring grass
Oakbrush
Galleta
Big sagebrush

Invaders

Rabbitbrush
Little rabbitbrush
Pingue
Pussytoes
Stickseed
Cheatgrass

RANGE SITE - No. 150

5. POTENTIAL VEGETATION: (continued)

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|-----------------------|-----------------------|-----------------|
| Needle & thread grass | Silver sagebrush | |
| Chamise | Estafiata | |
| Winterfat | Shrubby buckwheat | |
| Mutton grass | Snakeweed | |
| Indian ricegrass | Groundsels | |
| Squirreltail | Herbaceous cinquefoil | |
| Wild rye | Lupine | |
| Spike muhly | | |
| Junegrass | | |
| Little bluestem | | |

- b. The dominant aspect of this site is grassland. In high condition class the site produces a good mixture of perennial bunch and sod grasses which collectively comprise at least 80 percent of the total plant composition. Although ponderosa pine may be present on this site in limited amounts, it is usually present as a light stand of "wolf" trees or as a young stand of reproduction.
- c. Dominant grasses providing the greatest bulk of the forage are western wheatgrass, slender wheatgrass, mountain muhly, bromes, blue grama, and Indian ricegrass. These species make up approximately 50 percent of the total plant composition. Other species present and important as indicators are pine dropseed, needle and thread grass, Arizona fescue, alkali sacaton, junegrass, and Poa spp. Plants of this group may add 30 percent to the plant composition. Increasers of importance on this site include sleepy grass, galleta, sedges, and three-awn, not in excess of 10 percent composition. Shrubby increasers include oakbrush, shrubby buckwheat, big and silver sagebrush, black sage, snowberry, and rabbitbrush. Little rabbitbrush represents the most serious increaser on this site. Forbs and shrubs do not make up more than 20 percent of the total plant composition.
- d. Forage yields on this site have been determined to be 800 pounds per acre for western wheatgrass with an accompanying 1,850 pounds of herbaceous litter. Weights for mixed grasses are _____ pounds per acre under normal growing conditions.
- e. Ground cover for this site is approximately 45 percent when top condition exists and the site has the appearance of light to moderately dense meadow.

TG Section II-E

RANGE SITE - No. 150

6. SPECIFIC TYPE LOCATION:

Gallina Valley near Llaves.

Also Nutria Valley on Martinez and Spill Brothers Ranches near Cebolla
and Tierra Amarilla.

RANGE CONDITION GUIDE

#150

Range Site Name Valley Shale (RM-1)

| Rating | Decreasers | Increasers | Max. % | Invaders |
|--------|--------------------------|---------------------------------------|-----------|--------------------|
| | (Count all percent) | (Count no more than percent shown) | By Wt. | (Count None) |
| 2 | Mountain muhly | Sleepy grass | 5 | Rabbitbrush |
| 3 | Pine dropseed | Three-awn | T | Little rabbitbrush |
| 2 | Arizona fescue | Mat muhly | 5 | Pingue |
| 3 | Mountain brome | Dryland sedge | 5 | Pussy toes |
| 2 | Slender wheatgrass | Ring muhly | T | Stickseed |
| 3 | Western wheatgrass | Oakbrush | 10 | Cheatgrass |
| 3 | Blue grama | Galleta | 5 | |
| 5 | Vine-mesquite | Big sagebrush | T | |
| 4 | Needle and thread | Silver sagebrush | 5 | |
| 5 | Chamiza | Fringed sagebrush | 5 | |
| 5 | Winterfat | Shrubby buckwheat | T | |
| 3 | Mutton grass | Snakeweed | T | |
| 3 | Indian ricegrass | Goundsel | T | |
| 3 | Alkali sacaton | Herbaceous cinquefoil | 5 | |
| 5 | Bottlebrush squirreltail | Lupine | T | |
| 4 | Wild rye | | | |
| 3 | Spike muhly | | | |
| 4 | Prairie junegrass | | | |
| 5 | Little bluestem | | | |

Maximum total percent 25

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 45 | 40 | 35 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| Range Condition Classification | | | |
|--------------------------------|------|------|------|
| Excellent | Good | Fair | Poor |

Favorable Years

Unfavorable Years

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Rocky Mountains (RM-1)

TG Section II-E

RANGE SITE - No. 151

1. RANGE SITE NAME: Mountain Valley (RM-1)

2. CLIMATE:

- a. Annual precipitation varies from 20 to 30 inches for this site and of this amount approximately 30 percent occurs in the form of winter snow. Variations in both winter and summer precipitation may be quite extreme, ranging from rather open, dry winters to winters during which several feet of snow are accumulated over an extremely moist or saturated forest floor. Summer thundershower activity, which is greatest during July, August, and September, although somewhat more dependable than at sites of lower elevation, may also be very sporadic. As examples of extreme fluctuations in precipitation yield by years, records show 10.02 inches received at Regina in 1950 as compared to 29.07 inches received in 1941. Records for Santa Fe Canyon show somewhat less variation with 15.83 inches in 1912 and 21.24 inches in 1911.
- b. Mountain winds have an effect on the growing conditions within this site in their effect of increasing moisture loss in litter and the surface soil horizon. Availability of moisture for plant growth is made of a limiting factor on this site than it is on sites at higher elevations.
- c. Forage production is dependent upon both winter and summer moisture and therefore yields of forage fluctuate directly with amount of precipitation. The site is a critical one also from the standpoint of watershed problems. It constitutes one of the storage facilities for winter moisture that will later be converted to stream flow for domestic and irrigation use. The mean temperature varies from well below zero to about 60°F and the frost-free period lasts for about 4 months, extending from June 1 to October 1. Some cool season growers begin growth almost with snow recession and also enjoy a brief growing period in the fall. Evaporation rates vary with elevation within the site. Rates are generally low at the higher elevations and increase at lower elevations particularly on the southern and western exposures. Since the growing season and the period of use on this site practically coincide, the key forage plants are placed at a considerable disadvantage. While subject to use, they must produce seed and store reserve carbohydrates and accomplish this in a relatively short period.

RANGE SITE - No. 151

3. TOPOGRAPHY AND ELEVATIONS:

This site is a part of the mountain valley topography that extends ordinarily from the confluence of main streams up through the high mountain sites. The alluvial slopes immediately adjacent to main streams are included in this site also and these sites are extended up the drainage-way side slopes to where gradients exceed 5 percent. The Mountain Valley site is a part of the rough, broken rocky mountain topographic complex with intermixed Mountain Grassland, Subalpine Grassland, Mountain Meadow, Pine Grassland, and Mountain Shale sites. The site includes vega-like mountain flats or parks where a high water table is not present. Because of the low gradients of this site, exposure differences are not as pronounced as in most other mountain sites. Mesa tops and logged-off areas, with relatively flat or rolling and gently sloping topography with slopes less than 5 percent, are constituents of this site. Elevation range is from 7,000 feet to 9,000 feet.

4. SOILS:

a. The lower slopes of Mountain Valleys are typically deep, dark colored soils with loam, sandy clay loam, and clay loam textures. At the upper slopes of this site, soils may become shallower but never less than 20 inches. Various sands and gravels may be encountered at depths greater than 20 inches. These soils take water rapidly because of their strong, granular structure. Water storage capacity of these soils is excellent, particularly where the subsoils are clay loams.

b. The following soils are found on this site:

Unnamed soils.

5. POTENTIAL VEGETATION:

a. The vegetation is composed of the following:

Decreasers

Mountain brome
Tufted hairgrass
Mountain muhly
Arizona fescue
Thurber's fescue
Poa spp.
Oatgrass
Spike muhly
Timothy
Pine dropseed

Increasers

Blue grama
Mat muhly
Western wheatgrass
Galleta
Three-awn
Rush
Sedge
Red top
Green gentian
Ceanothus spp.

Invaders

Kentucky bluegrass
Mule's ears
Skunk cabbage
Pingue
Rabbitbrush
Cinquefoil
Snakeweed
Pussytoes
Big sagebrush
Knotweed

5. POTENTIAL VEGETATION: (continued)

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|-----------------------|-------------------|-----------------|
| Slender wheatgrass | Iris | |
| Bearded wheatgrass | Meadow barley | |
| Junegrass | Melic grass | |
| Columbian needlegrass | Solomon's seal | |
| Vetch | Squirreltail | |
| Peavine | Fringed sage | |
| Trisetum spp. | Yarrow | |
| Clovers | Cone flower | |
| Bluebell | Viola spp. | |

- b. The plant cover on this site is dominantly mountain bunchgrasses, including the following: Spike muhly, mountain muhly, Arizona fescue, Thurber's fescue, timber oatgrass, timothy, junegrass, sideoats grama, little bluestem, mountain bromes, needle and thread grasses, tufted hairgrass, and blue grama. Kentucky bluegrass, mat muhleys and sedges are present in small amounts as an understory to the above-named bunchgrasses. A small percentage of the total plant composition is made up of such forbs as vetch, peavine, bluebell, dandelion, aster, etc. These forbs do not total more than 5 percent of the composition and such shrubs as rabbitbrush, elderberry, snowberry, sage, and snakeweed do not exceed this amount. Perennial bunchgrasses aggregate approximately 80 percent of the total plant composition. The plant cover is uniformly distributed over the site with "skips" occurring only on recently disturbed areas. Bunch grass species display a high state of vigor, producing good leaf length, tall seedstalks, and a viable seed crop.
- c. Blue grama does not exceed 15 percent of the composition on this site and Kentucky bluegrass is less than 10 percent. Pussytoes, sedges, blue grama, Iris, mule's ears, cinquefoil, knotweed, and sage are important increasers or invaders of this site.
- d. Forage yield for this site is quite variable. Excellent condition range yields 2,900 pounds of air dry material per acre, including mountain muhly, Arizona fescue, and spike muhly. Litter amounts of 3,650 pounds per acre have been recorded for this site.
- e. Approximately 40 percent or almost half the ground surface is occupied or protected by living plant material and the interspaces between grass clumps are almost completely thatched with fallen litter. There is no abnormal erosion activity. Drainageways have gentle slopes with a mantle of protective vegetation.

TG Section II-E

RANGE SITE - No. 151

6. SPECIFIC TYPE LOCATION:

Porter Ranch in Jemez Mountains; also
Little Chama Valley on Sargent Ranch, northwest of Chama.

RANGE CONDITION GUIDE

#151

Range Site Name Mountain Valley (RM-1)

| Rating | Decreasers | Increasers | Max. | Invaders |
|--------|-----------------------|------------------------------------|----------------|--------------------|
| | (Count all percent) | (Count no more than percent shown) | % By Wt. | (Count None) |
| 2 | Mountain brome | Blue grama | 15 | Kentucky bluegrass |
| 3 | Tufted hairgrass | Mat muhly | T | Mule's ears |
| 1 | Mountain muhly | Western wheatgrass | 10 | Skunk cabbage |
| 2 | Arizona fescue | Galleta | T | Pingue |
| 3 | Thurber's fescue | Three-awn | T | Rabbitbrush |
| 3 | Poa spp. | Rush | T | Cinquefoil |
| 4 | Oatgrass | Sedges | 5 | Snakeweed |
| 3 | Spike muhly | Red top | 5 | Pussytoes |
| 3 | Timothy | Green gentian | T | Big sagebrush |
| 3 | Pine dropseed | Ceanothus spp. | T | Knotweed |
| 5 | Slender wheatgrass | Iris spp. | T | |
| 5 | Bearded wheatgrass | Meadow barley | T | |
| 5 | Prairie junegrass | Melic grass | 5 | |
| 4 | Columbian needlegrass | Solomon's seal | T | |
| 4 | Vetch | Bottlebrush squirreltail | 5 | |
| 4 | Peavine | Fringed sagebrush | 5 | |
| 5 | Trisetum spp. | Yarrow | T | |
| 5 | Clover | Cone flower | T | |
| 5 | Bluebell | Viola spp. | T | |
| | | Other forbs | 5 | |
| | | Other shrubs | 5 | |

Maximum total percent 25

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 40 | 35 | 30 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | 2,900 | | | |
| Unfavorable Years | | | | |

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Albuquerque, New Mexico
Land Resource Area--Rocky Mountains (RM-2)

TG Section II-E

RANGE SITE - No. 152

1. RANGE SITE NAME: Mountain Valley (RM-2)

2. CLIMATE:

- a. The long time average annual precipitation is approximately 20 inches for this site. Yearly amounts fluctuate widely as evidenced from the following records:

| | | | | |
|-------------|-------|--------|----|------|
| Mescalero | 9.56 | inches | in | 1947 |
| (6,627 ft.) | 35.19 | " | " | 1941 |
| Cloudcroft | 8.6 | " | " | 1951 |
| (8,650 ft.) | 42.96 | " | " | 1941 |
| Aragon | 8.22 | " | " | 1924 |
| (6,687 ft.) | 17.46 | " | " | 1911 |
| Mogollon | 9.82 | " | " | 1950 |
| (6,600 ft.) | 31.89 | " | " | 1941 |

These extreme variations for mountain type country result in wide variations in forage production. Approximately 40 percent of the annual precipitation falls in the form of snow with the bulk of the remainder being received during July, August, and September in the form of heavy thundershowers. Usually, precipitation amounts are light in the spring and fall but exceptions do occur when amounts of 4 inches or more are received in March.

- b. High and frequent winds cause severe desiccation of soil moisture.
- c. The mean temperature varies from well below zero up to 60°F while the frost-free period is for about the 4-month period June 1 to October 1. During some winters snowfall accumulations, usually in late winter or early spring, may cause limited movements of livestock and necessitates extra feeding where an attempt is made to winter stock at these elevations. Evaporation rates for the site vary widely with geographic location and elevation differences within the site. Because of the low gradients exposure differences in the site are negligible but may be recognized on the side slopes of main drainage-ways.

RANGE SITE - No. 152

3. TOPOGRAPHY AND ELEVATIONS:

This site occurs as an associated site with Mountain Grassland, Sub-alpine Grassland, Dry Mountain Grassland, Pine Grassland, Mountain Shale, and Mountain Meadow range sites. Topography is nearly flat through gentle slopes with gradients not exceeding 5 percent. The site includes the broader drainageways and also the narrower valleys peculiar to mountainous topography. The bottom land and side slopes of these valleys, extending up to 5 percent slopes, are included within the identity of this site. The more mesic areas adjacent to the streams of these valleys may sustain meadow or cienega type vegetation and, if so, such areas are separated out as Mountain Meadow site. The site does receive some overflow irrigation either from the main drainage or from adjacent side slopes. High mesas and park-like areas may be included within this site classification if runoff is received. Elevation range is from 6,500 feet to 8,500 feet.

4. SOILS:

- a. Soils are dominantly deep with medium to moderately fine textured surface soils. Surface soils have good intake, and are moderately permeable. Soils may be underlain at a moderate depth with gravel and sand. Permeability rates in the subsoil and substratum are moderate to high.
- b. The following soils are identified on the Mountain Valley (RM-1) site:

Unnamed soils

5. POTENTIAL VEGETATION:

- a. The vegetation is composed of the following:

Decreasers

Mountain muhly
Arizona fescue
Deergrass
Bullgrass
Muhlenbergia mundula
Pine grass
Timothy
Black dropseed
Poa spp.
Junegrass
Metcalfes muhly
Bulb panic
Bush muhly

Increasers

Blue grama
Hairy grama
Pull-up muhly
Ring grass
Curly mesquite
Three-awn
Creeping muhly
Western wheatgrass
Mullein
Manzanita
Beargrass
Iris
Sedge

Invaders

Sleepy grass
Kentucky bluegrass
Rabbitbrush
Snakeweed

5. POTENTIAL VEGETATION: (continued)

| <u>Decreasers</u> | <u>Increasers</u> | <u>Invaders</u> |
|-------------------------|-------------------|-----------------|
| Green bristlegrass | Oakbrush | |
| Mountain brome | Buckwheat | |
| Subalpine needlegrass | Spanish dagger | |
| Letterman's needlegrass | Squawbush | |
| Mutton grass | | |
| Little bluestem | | |
| Ceanothus | | |
| Tufted hairgrass | | |
| Cliff rose | | |
| Feather-dalea | | |

- b. Important bunchgrasses present on the site include the following: Mountain muhly, Arizona fescue, deer grass, bull grass, metcalfe muhly, muhlenbergia mundula, Texas timothy, mutton grass, needlegrasses, tufted hairgrass and oatgrass. Sideoats grama may be present on the upper slopes of this site, along with little bluestem. Bulb panic and green bristlegrass may be present in small amounts. Where blue grama is absent this group of grasses makes up approximately 70 percent of the plant composition of this site and the remaining 30 percent is made up of grasses of secondary importance, perennial forbs, and shrub or browse species. Where blue grama is present the mountain bunchgrasses are limited to a percentage composition of approximately 45 percent. Shrub species that are found in trace amounts on this site are manzanita, ceanothus spp., beargrass, rabbitbrush, snakeweed, squawbush, and live oaks. These shrub species ordinarily do not constitute more than 15 percent of the plant composition. This site may be associated with Mountain Meadows in which case some species peculiar to the Meadow site may be present in trace amounts. Old seed trees of ponderosa pine and also scattered reproduction of this species may be present on the site but not to exceed a canopy density of more than 10 percent.
- c. The dominant plant cover on this site is a mixture of mountain bunchgrasses with amounts of blue and hairy grama totalling up to 25 percent of the total plant composition. Kentucky bluegrass may be present in amounts up to 10 percent. Western wheatgrass, sleepy grass, creeping muhllys, and sedges do not occupy more than 15 percent of the plant composition. The site differs from Mountain Valley (RM-1) in having more deer grass, bull grass, and different shrub species.
- d. Forage yield varies from _____ pounds per acre in drought years up to _____ pounds per acre in better than average moisture years.

RANGE SITE - No. 152

5. POTENTIAL VEGETATION: (continued)

- e. The total herbaceous ground cover on this site is uniform and occupies approximately 35 percent of the surface.

6. SPECIFIC TYPE LOCATION:

Diamond Creek in Grant County.
James Canyon area in Otero County.
Penasco area near Mayhill.

RANGE CONDITION GUIDE

#152

Range Site Name Mountain Valley (RM-2)

| Rating | Decreasers | Increasers | Max. % By Wt. | Invaders |
|--------|-------------------------|---------------------------------------|------------------------|--------------------|
| | (Count all percent) | (Count no more than percent shown) | | (Count None) |
| 2 | Mountain muhly | Blue grama) | 25 | Sleepy grass |
| 3 | Arizona fescue | Hairy grama) | | Kentucky bluegrass |
| 3 | Deergrass | Pull-up muhly | 5 | Rabbitbrush |
| 3 | Bullgrass | Ring muhly | T | Snakeweed |
| 4 | Muhlenbergia mundula | Curly mesquite | 5 | |
| 5 | Pine grass | Three-awn | T | |
| 4 | Timothy | Creeping muhly | 5 | |
| 4 | Black dropseed | Western wheatgrass | 5 | |
| 4 | Oatgrass | Mullein | T | |
| 4 | Pine dropseed | Manzanita | T | |
| 3 | Poa spp. | Sacahuista | 5 | |
| 3 | Prairie junegrass | Iris spp. | T | |
| 4 | Metcalf's muhly | Sedges | 5 | |
| 4 | Bulb panic | Oaks | 5 | |
| 4 | Bush muhly | Buckwheat | T | |
| 4 | Green bristlegrass | Spanish dagger | T | |
| 3 | Mountain brome | Skunkbush sumac | 5 | |
| 3 | Sub-alpine needlegrass | Other shrubs | 5 | |
| 3 | Letterman's needlegrass | | | |
| 3 | Muttongrass | | | |
| 2 | Little bluestem | | | |
| 3 | Ceanothus spp. | | | |
| 3 | Sideoats grama | | | |
| 4 | Texas timothy | | | |
| 5 | Tufted hairgrass | | | |
| 5 | Cliff rose | | | |
| 5 | Geranium | | | |
| 5 | Feather dalea | | | |
| 5 | Vetch | | | |
| 4 | Other forbs | | | |

Maximum total percent 40

| | Range Condition Classification | | | |
|-------------------------------------------|--------------------------------|-------|-------|------|
| | Excellent | Good | Fair | Poor |
| Percent by Weight of Potential Vegetation | 76-100 | 51-75 | 50-26 | 0-25 |
| Minimum Percent Density | 35 | 30 | 25 | XX |

Approximate Air-Dry Forage Yields per Acre By:

| | Range Condition Classification | | | |
|-------------------|--------------------------------|------|------|------|
| | Excellent | Good | Fair | Poor |
| Favorable Years | | | | |
| Unfavorable Years | | | | |

